









THE MEETING-PLACE

OF

GEOLOGY AND HISTORY

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BY

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PREFACE

THE object of this little book is to give a clear and accurate statement of facts bearing on the character of the debatable ground intervening between the later part of the geological record and the beginnings of sacred and secular history.

The subject is one as yet full of difficulty; but the materials for its treatment have been rapidly accumulating, and it is hoped that it may prove possible to render it more interesting and intelligible than heretofore.

J. W. D



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CHAPTER I

GENERAL NATURE OF THE SUBJECT

THE science of the earth and the history of man, though cultivated by very different classes of specialists and in very different ways, must have their meeting-place. They must indeed not only meet, but overlap and run abreast of each other throughout nearly the whole time occupied by the existence of man on the earth. The geologist, from his point of view, studies all the stratified crust of the earth, down to the mud deposited by last year's river inundations. The historian, aided by the archæologist, has written and monumental evidence carrying him back to the time of the earliest known men, many thousands of years ago. Throughout all

this interval the two records must have run more or less parallel to each other, and must be in contact along the whole line.

The geologist, ascending from the oldest and lowest portions of the earth's crust, and dealing for millions of years with physical forces and the instinctive powers of animals alone, at length as he approaches the surface finds himself in contact with an entirely new agency, the free-will and conscious action of man. It is true that at first the effects of these are small, and the time in which they have been active is insignificant in comparison with that occupied by previous geological ages; but they introduce new questions which constantly grow in importance, down to those later times in which human agency has so profoundly affected the surface of the earth and its living inhabitants. Finally, the geologist is obliged to have recourse to human observation and testimony for his information respecting those modern causes to which he has to appeal for the explanation of former changes, and has to adduce effects produced by human agency in illustration of, or in contrast with, mutations in the pre-human periods.

The historian, on the other hand, finds, as he passes backward into earlier ages, documentary evidence failing him, and much of what he can obtain becoming mythical, vague or uncertain, or difficult of explanation by modern analogies, until at length he is fain to have recourse to the pick-axe and spade, and to endeavour to disinter from the earth the

scanty relics of primeval man, much as the geologist searches in the bedded rocks for the fossils which they contain. He has even learned to use for these earliest ages the term prehistoric, and so practically to transfer them to the domain of the archæologist and geologist.

It is evident, therefore, that if we seek for the meeting-place of geology and history, we shall find not a mere point or line of contact, but a series of such points, and even a complicated splicing together of different threads of investigation, which it may be difficult to disentangle, and which the geological specialist alone, or the historical specialist alone, may be unable fully to understand. The object of this little volume will be to unravel as many as possible of these threads of contact, and to make their value and meaning plain to the general reader, so that he may not, on the one hand, blindly follow mere assertions and speculations, or, on the other, fail to appreciate ascertained and weighty facts relating to this great and important matter of human origins.

This is the more necessary since, even in works of some pretension, there are tendencies on the one hand to overlook geological evidence in favour of written records, or even of conjectural hypotheses, and on the other to reject all early historical testimony or tradition as valueless. We shall find that neither of these extremes is conducive to accurate conclusions. Researches of a geologico-historical character necessarily also bring us in view of the

early history of our sacred books. This may be to some extent an evil, as inviting the excitement of religious controversy ; but on the other hand the fact that the early history incorporated in the Bible goes back to the introduction of man, and connects this with the completion of the physical and organic preparations for his advent, has many and important uses. It would seem indeed that it is a great advantage to our Christian civilisation that our sacred books begin with a history of creation, giving an idea of order and progress in the creative work. Whether we regard the days of creation as literal days or days of vision of a seer, or whether we hold them to be days of God and His working, suitable to the Eternal One and His mighty plan, and bearing the same relation to Him that ordinary working days bear to us, we cannot escape the idea of an orderly work in time. This, while it delivers the Bible reader from the extravagant myths current among heathen peoples, ancient and modern, predisposes him to expect that something may be learned from nature as to its beginning and progress. In like manner the short statements in Genesis respecting the early history of man have awakened curiosity as to human origins, and have led us to search for further details derivable from ancient monuments. The ordinary Christian who believes his Bible is thus so far on his way toward a rational geology and archæology, and cannot say with truth that he is absolutely ignorant of the pre-human history of the earth. His notions,

it is true, may be imperfect, either by reason of the brevity of the record to which he trusts, or of his own imperfect knowledge of its contents, but they give to historical and archæological inquiry an interest and importance which they could not otherwise possess.[1]

The earth has indeed, especially in our own time, and under the impulse of Christian civilisation, made wonderful revelations as to its early history, to which we do well to take heed, as antidotes to some of the speculations which are palmed upon a credulous world as established truths. We have now very complete data for tracing the earth from its original formless or chaotic state through a number of formative and preparatory stages up to its modern condition; but perhaps the parts of its history least clearly known, especially to general readers, are those that relate to the beginning and the end of the creative work. The earlier stages are those most different from our experience and whose monuments are most obscure. The later stages on the other hand have left fewer monuments, and these have been complicated with modern changes under human influence. Besides this, it is always difficult to piece together the deductions from merely monumental evidence and

[1] It is an interesting fact that the pecuniary means, the skill and labour expended in research in the more ancient historic regions, have to so large an extent been those of Christians interested in the Bible history. Yet some *littérateurs*, who have contributed nothing to these results, attempt to distort and falsify them in the interest of an unhistorical and unscientific criticism, and even to taunt the Bible as adverse to archæological inquiry.

the statements of written or traditional history. There would seem, however, to be now in our possession sufficient facts to link the human period to those which preceded it, and thereby to sweep away a large amount of misconception and misrepresentation in one department at least of the relations of natural science with history.

I have called the subject with which we are to deal the meeting-place of two sciences. In reality, however, it might be embraced under the name anthropology, the science of man, which covers both his old prehistoric ages as revealed by geology and archæology, and the more modern world which is still present, or of which we have written records. The main point to be observed is that it is necessary to place distinctly before our minds the fact that we are studying a period in which, on the one hand, we have to observe the precautions necessary in geological investigation, and on the other to examine the evidence of history and tradition. A failure either on the one side or the other may lead to the gravest errors.

In studying the subjects thus indicated it will be necessary first to notice shortly the history of the earth before the human period, and its condition at the time of man's introduction. We may then inquire as to the earliest known remains of man preserved in the crust of the earth, and trace his progress through the earlier part of the anthropic or human period, in so far as it is revealed to us by the

relics of man and his works preserved in the earth. We shall then be in a position to inquire as to the form in which the same chain of events is presented to us by history and tradition, and to discover the leading points in which the two records agree or appear to differ.

It may be necessary here to define a few terms. The two latest of the great geological periods may be termed respectively the *pleistocene* and the modern, or *anthropic*, the latter being the human period or age of man. The pleistocene includes what has been called the glacial age, a period of exceptional cold and of much subsidence and elevation of the land, in the northern hemisphere at least. The modern, or anthropic, is for our present purpose divisible into two sections—the early modern, or *palanthropic*, sometimes called quaternary, or post-glacial, and which may coincide with the antediluvian period of human history; and the *neanthropic*, extending onward to the present time.[1]

[1] The terms 'Palæolithic' and 'Neolithic' have been used for the men of the Palanthropic and Neanthropic ages; but these are objectionable, as implying that these ages can be best distinguished by the use of certain stone implements, which is not the fact. I have preferred, therefore, to call the earlier races of men *palæocosmic*, and the later *neocosmic*, where it may be necessary to refer to them *as races*; while the *periods* to which they belong are respectively the *Palanthropic* and *Neanthropic*. By the use of these terms all ambiguity will be avoided.

CHAPTER II

THE WORLD BEFORE MAN

MAN is of recent introduction on the earth. For millions of years the slow process of world-making had been going on, with reference to physical structure and to the lower grades of living creatures. Only within a few thousand years does our globe seem to have been fitted for its highest tenant. The evidence of this is to be found in any text-book of geology. I propose here merely to present the history of the earth in a series of word-pictures, introductory to our special subject.

Our first picture may be that of a nebula, vast and vaporous, containing the mixed and unconsolidated materials of the sun and planets—a void and desolate mass, slowly aggregating itself under the influence of gravitation.

Our next may be that of an incandescent globe, molten and glowing, and surrounded by a vast vaporous envelope, but tending by degrees to a condition in which it shall have a solid crust, on which the greater part of the watery vapour suspended in its atmosphere is to be condensed into a heated ocean.

Our third picture may represent the world of what geologists call the archæan, or eozoic period, when the crust had been furrowed up into ridges of land, and corresponding but wider depressions occupied by the sea. Into the latter the rains falling on the land are carrying sediment derived from the wasting rocks, though the waters are still warm and the thinner parts of the crust are still welling out rocky material, either molten or dissolved in heated water. In this period there were probably low forms of animal life in the waters and plants on the land, though we know little of their exact nature.

A fourth picture may represent that great and long-continued palæozoic period in which the waters swarmed with many forms of life, when fishes were introduced into the sea, and when the land became covered with dense forests of plants allied to the modern club-mosses, ferns, mares'-tails and pines; while insects, scorpions and snails, and some of the humbler forms of reptiles, found place on the land.

Returning after an interval, we should see a fifth picture, that of the mesozoic world. This was the age of reptiles, when animals of that class attained their highest and most gigantic forms, and occupied in the sea, on the land, and in the air the places now held by the mammals and the birds; while the continents were covered with a flora distinct alike from that of the previous and succeeding periods, replaced, however, as time went on by forests very like those of the modern world. In this age the earliest mam-

mals or ordinary quadrupeds were introduced, few at first, small and of low rank in their class. Birds also made their appearance, and toward the close of the period fishes of modern types swarmed for the first time in the sea.

Lastly, we might see in the cenozoic, or tertiary age, the newest of all, quadrupeds dominant on the land and modern types of animal life in the sea. In this period our continents finally assumed their present forms. Toward its close and after many vicissitudes of geography and climate, and several successive dynasties of mammalian life, man and the land animals now his contemporaries occupied the world, and thus the cenozoic passes into the *anthropic*, or modern period, called by some, but without good reason, 'quaternary,' since it is in all respects a proper continuation of the tertiary, or cenozoic.[1]

This last age of the world is so intimately connected with man that it will be necessary to consider it more in detail. More particularly we may endeavour to answer, if we can, the questions of order and time involved in man's late appearance.

No geologist would expect to find any remains of man or his works in the periods represented by our five earlier pictures, because in these periods the physical conditions necessary to man and the animals nearest to him in structure do not appear to have

[1] It will be seen that our six pictures are in some degree parallel with the 'days' of creation. This is not an intentional reconciliation. It merely expresses the fact of the case, whatever its significance.

existed, and their places in nature were occupied by lower types.

Nor for similar reasons would we expect to meet with man in the earlier part of that last, or cenozoic, period in which we still live; and in point of fact it is only in superficial deposits of the later part of this last great period of the earth's history that we actually meet with evidence of the existence of the human species.

If there is based on this fact a question as to the actual date of man's first appearance, the physical considerations indicate about twenty millions of years for the whole duration of the earth. Setting apart, say, a fourth of this time for the early pre-geologic condition of the world, the remainder may be roughly estimated as five millions for the archæan, or eozoic, six for the palæozoic, three for the mesozoic, and one for the cenozoic.[1] Of the last, the later part, in which there is a possibility of the existence of man, will be limited to less than a quarter of a million; and within this the certainly known remains of man, whether attributed as by some to the latest interglacial period, or to the post-glacial—a mere question of terms, and not of facts—cannot be older, according to the best geological estimates, than from seven thousand to ten thousand years. This, according to our present knowledge, is the maximum date of the

[1] The absolute length of these periods is, of course, a matter of estimation; but the *relative* lengths of the different ages may be regarded as a fair approximation, based on facts.

oldest traces of man, and probably these are nearer in age to the smaller than to the larger number.

If the reader will take the trouble to draw on paper a scale of twenty inches, each of these will represent a million of years of the earth's history, and the known duration of the human period may be indicated by a thickish line at one end of the scale. We may thus represent to the eye the recency of man's appearance, so far as at present known to science.

It may be said that all this is mere assertion. It fairly represents, however, the conclusions reached on the latest geological evidence, though this evidence would demand for its full detail a larger space than the whole of this little volume. References are given below to works in which this evidence will be found.[1]

It may also be objected that if, as held by some evolutionists, man was slowly developed from lower animals, and if his earliest known remains are still human in their characters, he must have had a vastly longer history covering the periods of his gradual change from, say, ape-like forms. This is admitted; but then we have as yet no good evidence that man was so developed, and no remains of intermediate forms are yet known to science. Even should some animal, either recent or fossil, be discovered intermediate in structure between man and the highest apes, we should still require proof that it was the

[1] Lyell's *Students' Manual*; Dana's *Manual*; Prestwich's *Geology*; *The Story of the Earth*, by the author.

ancestor of man, by the occurrence of connecting forms, or otherwise. As the facts now stand, the earliest known remains of man are *still human*, and tell us nothing as to previous stages of development.

We must now glance a little more particularly at what may be termed the more immediate antecedents of man. The latest great period of the earth's geological history (the cenozoic) was ingeniously subdivided by Lyell, on the ground of the percentages of extinct and surviving species of marine shells contained in its several beds. According to this method, which, with some modifications in detail, is still accepted, the eocene age, or that of the dawn of the recent, includes those formations in which the percentage of modern or still living species of marine animals does not exceed three and a half, all the other species found being extinct. The miocene (less recent) includes beds in which the percentage of living species does not exceed thirty-five. The pliocene (more recent) includes beds in which the living forms of marine life exceed thirty-five per cent., but there is still a considerable proportion of extinct species. Newer than this we have the pleistocene (most recent), in which there are scarcely as many extinct species as there are of recent in the eocene. Lastly, the modern, of course, includes only the living species of the modern seas. Other geologists, notably Dawkins and Gandry, have arrived at similar results from a consideration of the vertebrate animals of the land. In the eocene we find numerous remains of mammals,

or ordinary land quadrupeds, but all are extinct, and nearly all belong to extinct genera. In the miocene there are many living genera, but no species that survive to the present time. The pliocene begins to show a few living species, and these are dominant in the succeeding pleistocene.

These several stages of the cenozoic were also characterised by great vicissitudes of geography and climate. In the early and middle portions of the eocene, much of the land of the northern hemisphere was under the sea or in the state of swamps and marshes, and there seems to have been a very mild and equable climate, insomuch that plants now limited to warm temperate regions could flourish in Greenland. It is further to be observed that regions such as Mesopotamia, Syria and Egypt, which are known to us historically as among the earliest abodes of man, were at this time under the ocean, as were also rocks that now appear at great elevations in the highest mountains of Europe and Asia. For example, the limestones through which the Nile has cut its valley are marine beds of eocene age, and beds of the same period holding marine remains occur at an elevation of 16,000 feet in the Himalayan region.

In the miocene the amount of land was somewhat greater, though large areas of the continents were still under the sea, and the climate was still mild, but for reasons to be stated in the sequel it is not likely that man inhabited the warm continents of this age. The pliocene inaugurates what has been termed a

continental period, when the land of the northern hemisphere was higher and more extensive than at present. It was also a time of great physical change, when much erosion of valleys and sculpturing of the surface of the land occurred, and when extensive earth movements and ejections of igneous rock increased the irregularity of the surface and gave greater variety and beauty to the land. The pliocene was altogether a most important period for giving the finishing touches of physical geography, and in it several modern species of land animals were introduced ; but we have as yet, as we shall find in the sequel, no certain evidence that man was a witness of the movements and sculpturing of the earth's crust, so important in the preparation of his future home, though statements to this effect have been made on grounds which we shall have to consider.

In the course of the pliocene the previously high temperature of the northern hemisphere was sensibly lowered, and at its close the pleistocene period introduced a cold and wintry climate, along with gradual and unequal subsidence of the land, the whole producing that most dismal of the geological ages, known as the 'glacial period.' At this time much of the lower land of the continents was submerged and the mountains became covered with snow and ice, leaving space for vegetable and animal life only toward the south and in a few favoured spots in the higher latitudes. There is much difference of opinion among geologists as to the extent, duration and

vicissitudes of this reign of ice, but there can be no doubt that it destroyed much of the animal and vegetable life of the pliocene, or obliged it to migrate to the southward. In this period great deposits of mud, sand and gravel were laid down, which prepared the world for a new departure in the succeeding age. This we may name the post-glacial, or early modern period, and in it we have the most certain evidence of the existence of man, though the geographical arrangement of our continents and their animal inhabitants were in many respects different from what they now are. If geologists are right in the conclusion already stated, that the close of the glacial period is as recent as 7,000 years ago, this will give us a narrow limit in time for the age of man, at least under his present conditions.

While, however, there is an absolute consensus of opinion among geologists as to the existence of man at or about the close of the glacial age, in the northern temperate regions at least, there are some facts which have been supposed to indicate a pre-glacial human period, or the advent of man even as early as the middle of the cenozoic time. These merit a short consideration.

CHAPTER III

THE EARLIEST TRACES OF MAN

In the eocene, or earliest cenozoic, it is not pretended by anyone that man existed, except inferentially, on the ground that if the remains we know in the earliest caves and gravels belong to men who were developed from apes on the method of natural selection, their ancestors must have existed, at least in a semi-human form, in the eocene. But no such precursors of man are yet known to us. It would have been pleasant to believe that man arrived in time to see the beautiful forests and to enjoy the mild climate of the golden age of the miocene, and this would have agreed with some human traditions ; but the probabilities are against it, as we know no one species of higher animal of the many found in the miocene that has survived to our time. The privilege of enjoying the forests of the miocene age seems to have been reserved for some large and specialised monkeys, which even Darwinians can scarcely claim as probable ancestors of man.[1] It would appear also that owing to increasing refrigeration of climate these

[1] *Dryopithecus* and *Mesopithecus*.

apes were either obliged to leave Europe for warmer latitudes or became extinct in the succeeding pliocene.

There are, however, in France two localities, one in the upper and the other in the middle miocene, which have afforded what are supposed to be worked flints.[1] The geological age of the deposits seems in both cases beyond question, but doubts have been cast, and this seemingly with some reason, on the artificial character of the flint flakes, while in the case of some examples which appear to be scrapers and borers, like those in use long afterward by semi-civilised peoples for working in bone and skin, there are grave doubts whether they actually came from the miocene beds. Lastly, it has even been suggested that these flints may be the handiwork of miocene apes, a suggestion not so unreasonable as at first sight it appears, when taken in connection with the working instincts of beavers and other animals. Monkeys, however, seem to have less of this gift as artificers than most other creatures. On the whole, we must regard the existence of miocene man as not proven, though, if it should prove to be a fact, it may be useful to some of the scoffers of these days to know that it would not be so irreconcilable with the Biblical account of creation as they seem to suppose. It might, however, prove a serious stumbling-block to orthodox Darwinians, and might raise some difficulties respecting antediluvian genealogies.

In the pliocene of Europe there are alleged to be instances of the occurrence of human bones. One of

[1] Puy, Courny and Thenay.

these is that of the skull now in the museum of Florence, supposed to have been found in the pliocene of the Val d'Arno. It is, however, a skull of modern type, and may have been brought down from the surface by a landslip. But this explanation does not seem to apply to the human remains found in lower pliocene beds at Castelnedolo, near Brescia. They include a nearly entire human skeleton, and are said by good observers to have been imbedded in undisturbed pliocene beds. M. Quatrefages, who has described them, and whose testimony should be considered as that of an expert, was satisfied that the remains had not been interred, but were part of the original deposit. Unfortunately the skull of the only perfect skeleton is said to have been of fair proportions and superior to those of the ruder types of post-glacial men. This has cast a shade of suspicion on the discovery, especially on the part of evolutionists, who think it is not in accordance with theory that man should retrograde between the pliocene and the early modern period, instead of advancing. Still we may ask, why not? If men existed in the fine climates of the miocene and early pliocene, why should they not have been a noble race, suited to their environment; and when the cold of the glacial period intervened, with its scarcity and hardships, might they not have deteriorated, to be subsequently improved when better conditions supervened? This would certainly not be contradictory to experience in the case of varieties of other animals, however at variance

with a hypothetical idea of necessarily progressive improvement. Let us hope that the existence of European pliocene man will be established, and that he will be found to have been not of low and bestial type, but, as the discoveries above referred to if genuine would indicate, a worthy progenitor of modern races of men.

It still remains to inquire whether man may have made his appearance at the close of the pliocene or in the early stages of the pleistocene, before the full development of the glacial conditions of that period. Perhaps the most important indications of this kind are those adduced by Dr. Mourlon, of the Geological Survey of Belgium,[1] from which it would appear that worked flints and broken bones of animals occur in deposits, the relations of which would indicate that they belong either to the base of the pleistocene or close of the pliocene. They are imbedded in sands derived from eocene and pliocene beds, and supposed to have been *remanié* by wind action. With the modesty of a true man of science, Mourlon presents his facts, and does not insist too strongly on the important conclusion to which they seem to tend, but he has certainly established the strongest case yet on record for the existence of tertiary man. With this should, however, be placed the facts adduced in a similar sense by Prestwich in his paper on the worked flints of Ightham.[2]

[1] *Bulletin de l'Académie Royale de Belgique*, 1889.
[2] *Journal of the Geological Society*, London, May 1889.

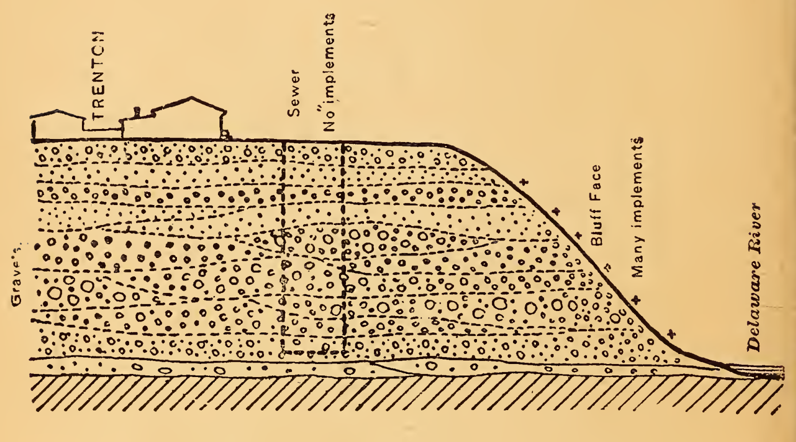
Should this be established, the curious result will follow that man must have been the witness of two great continental subsidences, or deluges, that of the early pleistocene and the early modern, the former of which, and perhaps the latter also, must have been accompanied with a great access of cold in the northern hemisphere. It seems, however, more likely that the facts will be found to admit of a different explanation.

Every reader of the scientific journals of the United States must be aware of the numerous finds of 'palæolithic' implements in 'glacial' gravels, indicating a far greater antiquity of man in America than on other grounds we have a right to imagine. I have endeavoured to show, in a work published several years ago,[1] how much doubt on geological grounds attaches to the reports of these discoveries, and how uncertain is the reference of the supposed implements to undisturbed glacial deposits, and how much such of the 'palæoliths' as appear to be the work of man resemble the rougher tools and rejectamenta of the modern Indians. But since the publication of that work, so great a number of 'finds' have been recorded, that despite their individual improbability, one was almost overwhelmed by the coincidence of so many witnesses. Now the bubble seems to have been effectually pricked by Mr. W. H. Holmes, of the American Geological Survey, who has published

[1] *Fossil Man*, London, 1880.

his observations in the *American Journal of Anthropology* and elsewhere.[1]

One of the most widely-known examples was that of Trenton, on the Delaware, where there was a bed of gravel alleged to be pleistocene, and which seemed to contain enough of 'palæolithic' implements to



SECTION AT TRENTON, ON THE DELAWARE, SHOWING THE RELATION OF THE STONE IMPLEMENTS TO THE GLACIAL (?) GRAVELS (after Holmes)

stock all the museums in the world. The evidence of age was not satisfactory from a geological point of view, and Holmes, with the aid of a deep excavation made for a city sewer, has shown that the supposed implements do not belong to the undisturbed gravel, but merely to a talus of loose *débris*

[1] *Science*, November 1892; *Journal of Geology*, 1893.



C

CHIPPED QUARTZITES, MODERN AMERICAN (after Holmes)

Upper line (1 to 6), unfinished and rejected pieces. Lower line (7 to 18), progress of development from the unfinished oval form to finished lance and arrow-heads.

lying against it, and to which modern Indians resorted to find material for implements, and left behind them rejected or unfinished pieces. This alleged discovery has therefore no geological or anthropological significance. The same acute and industrious observer has inquired into a number of similar cases in different parts of the United States, and finds all liable to objections on similar grounds, except in a few cases in which the alleged implements are probably not artificial. These observations not only dispose, for the present at least, of palæolithic man in America, but they suggest the propriety of a revision of the whole doctrine of 'palæolithic' and 'neolithic' implements as held in Great Britain and elsewhere. Such distinctions are often founded on forms which may quite as well represent merely local or temporary exigencies, or the *débris* of old workshops, as any difference of time or culture.

For the present, therefore, we may afford to pass over with this slight notice the alleged occurrence of miocene and pliocene man, and this the rather since, if such men ever existed in the northern hemisphere, the cold and submergence of the pleistocene must have cut them off from their more modern successors in such a way that man must practically have made a new beginning at the close of the glacial age.

I do not refer here to the finds of skulls and implements in the auriferous gravels of Western America. Some of these, if genuine, might go back to the pliocene age, but in so far as the evidence now

available indicates, they all belong to the modern races of Indians, and, in one way or another, by fraud or error, have had assigned to them a fabulous antiquity.

There still seems reason to believe that remains of man and his works exist in beds which are overlaid by boulders and gravel, implying a cold climate. These may indicate the last portion of the glacial period proper, in which case the beds with human remains may be called inter-glacial, or they may indicate a partial relapse to the cold conditions occurring after the glacial age had passed away, and in the early part of the modern period. My own view is, that it is most natural to draw the boundary line of the pleistocene and anthropic or modern at the point where the earliest certain evidences of man appear, and that the anthropic age will be found to include not only an early period of mild climate succeeding the glacial age, but a little later a return of cold, not comparable with that of the extreme glacial period, but sufficient seriously to affect human interests, and which almost immediately preceded those physical changes which carried away palæocosmic man, or the man of the earliest period, and many of his companion animals, and introduced the neanthropic or later human age. We shall find facts bearing on this in the sequel.

In the meantime, we may consider it as established beyond cavil that man was already in Europe immediately after the close of the glacial period, and

was contemporary with the species of animals, many of them large and formidable, which at that time occupied the land. He must have entered on the possession of a world more ample and richer in resources than that which remains to us. The early post-glacial age was, like the preceding pliocene, a time of continental elevation, in which the dry land spread itself widely over the now submerged margins of the sea basins. In Europe, the British Islands were connected with the mainland, and Ireland was united to England. The Rhine flowed northward to the Orkneys, through a wide plain probably wooded and swarming with great quadrupeds, now extinct or strange to Europe. The Thames and the Humber were tributaries of the Rhine. The land of France and Spain extended out to the hundred-fathom line. The shallower parts of the Mediterranean were dry land, and that sea was divided into two parts by land connecting Italy with Africa. Possibly portions of the shallower areas of the Atlantic were so elevated as to connect Europe and America more closely than at present.

Connected with this elevation of the continents out of the sea was a great change of climate, whereby the cold of the pleistocene age passed away and a milder climate overspread the northern hemisphere, while the newly-raised land and that vacated by snow and ice became clothed with vegetation, and were occupied by a rich quadrupedal fauna, including even in the northern parts of Europe, Asia, and America,

species of elephant, rhinoceros, and other genera now confined to the warmer climates. This new and noble world was the rich heritage of primeval man.

Pictet has estimated the number of species of mammals inhabiting Europe in the palanthropic period at ninety-eight,[1] of which only fifty-seven now live there, the remainder being either wholly or locally extinct—that is, they are either not now existing in any part of the world, or are found only beyond the limits of Central, Western, and Southern Europe. The extinct species also include the largest and noblest of all. It has been remarked that the assemblage of palanthropic species in Europe and Western Asia is so great and varied that with our present experience we can scarcely imagine them to have existed contemporaneously in the same region. For example, the association of species of elephant and rhinoceros, the musk-sheep, the reindeer, the Cape hyena, and the hippopotamus seems to be incongruous.

Various theories have been proposed to remove the difficulty. Modern analogies will allow us to believe in such astounding facts if we take into account the probability of a warm climate, especially in summer, along with a wooded state of the country providing much shelter, and wide continental plains affording facilities for seasonal migrations. There

[1] Zittel, in a recent paper (1893), gives 110 species of mammals in the pleistocene and early modern. Of these about twenty of the largest and most important are extinct.

were no doubt also climatal changes in the course of the age, which may have tended to the remarkable mixture of animal types in its deposits. In connection with this there is now every reason to believe that while, in its earlier part, the palanthropic age was distinguished by a warm climate, in its later portion a colder and more inclement atmosphere crept over the northern hemisphere. As an illustration of this, it is known that in the earlier part of the period a noble species of elephant named *Elephas antiquus*, and a rhinoceros (*R. Merkii*), abounded in Europe; but as the age advanced these species disappeared, and were replaced by the mammoth (*E. primigenius*) and the woolly rhinoceros (*R. tichorhinus*), animals clothed like the musk-ox in dense wool and hair, and evidently intended for a rigorous climate. With and succeeding these last species, the reindeer becomes characteristic and abundant. It is, as we shall see, a point of much importance in what may be called the prehistoric history of man, that he was introduced in a period of genial temperature as well as of wide continental extension, and survived to find his physical environment gradually becoming less favourable, and the age ending in that great cataclysm which swept so many species of animals and tribes of men out of existence, and reduced the dry land of our continents to its present comparatively limited area.

I should, perhaps, have noticed here the worked flints found so abundantly in some parts of the south

of England, which have long attracted the attention of collectors, and have in some cases been referred to glacial or pre-glacial times. I believe, however, they are all really post-glacial, though in some cases belonging to the earliest portion of that period.[1]

We may close the present chapter by presenting to the eye in a tabular form the series of events included in the pleistocene and modern periods of the great cenozoic time.

LATER CENOZOIC, OR TERTIARY PERIOD

(In Ascending Order, or from the Older to the Newer)

NEWER PLIOCENE.—A continental period of long duration, elevated land, much erosion, much volcanic action.

PLEISTOCENE.—Irregular elevation and depression of the land, ending in wide submergence with cold climate. Glaciers on all mountains near to coasts and ice-drift over submerged plains. Glacial period, with an inter-glacial mild period in the middle and great submergence of the continents toward the close.

ANTHROPIC.—*Palanthropic*, or post-glacial, in which the land emerges and attains a very wide extension, and is inhabited by a varied mammalian fauna. Man appears in Europe, Asia, and North Africa. Terminated by a recurrence of cold and great subsidence, deluging all the lower lands. *Neanthropic.*—Area of continents smaller than in the previous period. Surviving races of men and species of animals repeople the world. Modern races of men and modern animals.

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[1] Prestwich on 'Ightham Beds,' *Journ. Geol. Soc.*, 1893; Dawkins, *Journ. Anthrop. Soc.*, 1894.

CHAPTER IV

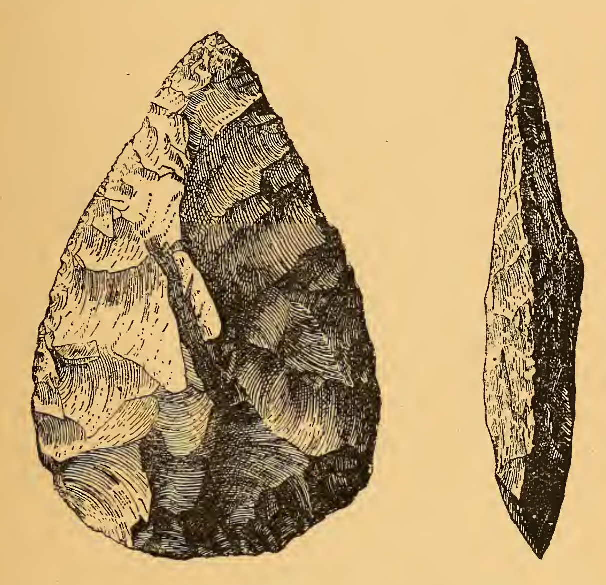
THE PALANTHROPIC AGE[1]

WE have now to inquire more particularly what we can learn as to the earliest men known to us, those who appeared in Western Asia and Europe at the close of the glacial period, when the cold had passed away and a genial climate had succeeded, and when the continents of the northern hemisphere had attained to their largest dimensions, were clothed with a rich vegetation and tenanted by an abundant mammalian fauna, including many large and important creatures now extinct.

We may first notice here a necessary limitation to our knowledge. The dry land of this age was of greater dimensions than at present. A large portion of what then was land is consequently now under the sea or deeply buried in alluvial deposits. Hence if any men of this age lived near the borders of the ocean, their remains must now be inaccessible, and the relics which we find must be those of inland tribes

[1] Called by some 'Palæolithic,' from the use of implements like hat figured on p. 41.

or of those who were driven inland by the encroachments of the waters. Our means of information are thus limited, and we must be prepared to admit that there may have been in this age great and populous communities of which we can have no record, at least



FLINT HACHE OF THE ANCIENT OR CHELLEAN TYPE, AURILLAC
(after Carthaillac)

of a geological character. Hence if we should find remains of only rude races of men, we should not be justified in assuming that all the peoples of the palanthropic age were of this character, more especially if we can find any indications that the men

whose remains are accessible to us, though rude themselves, may have belonged to more advanced races.

The bones, implements and weapons, and *débris* of the feasts of these primitive peoples are to be found principally in caves of residence or of sepulture,[1] and in the alluvia deposited by rivers, and in a few cases in rock fissures or marine gravels, into which remains were drifted, or in which they were deposited by water. Here again, we have another limitation, for it is possible that large populations may have lived on plains or in forests in perishable structures, and, like some modern savages, may have disposed of their dead in such a way that their bones could not have been preserved. In such cases we can hope to obtain, and then very rarely, only stone implements and other imperishable relics.

Notwithstanding these limitations, however, it is wonderful that so much has been recovered from the ground by the diligence of collectors, and that the material thus obtained has proved so fertile in information respecting our long-perished ancestors.

[1] Caverns, in relation to this subject, may be divided into those of residence, in which early men have lived and have left therein the *débris* of their food, the ashes and cinders of their fires, and implements, &c. ; those of sepulture, in which the bodies of the dead have been deposited ; and those of inundation, into which the bodies of animals or men have been drifted by floods. The same cave may, however, exhibit these different conditions in the deposits on its successive floors. Thus men may have inhabited a cave for a time ; it may next have been invaded by river floods depositing mud, and it may subsequently have been used for burial.

Supposing, then, that we search for remains of palæocosmic men in river alluvia, or in caves of residence or burial, or in similar repositories, the question next arises, by what means can we distinguish their bones from those of later times? The following criteria are available :

(1) The remains were in their present condition at least as long ago as the date of the earliest history or tradition. This evidence is of course of greatest value in those regions in which history extends farthest back. Thus the remains of early men in the Lebanon caves, which we know date much farther back than the arrival of the first Phœnicians and Canaanites in Syria, are in a different position, in so far as history is concerned, from those occurring in countries whose written history goes back only a few centuries.

(2) The deposits containing these remains may underlie those holding relics of historic times, or may indicate different physical conditions of the districts in which they occur from those known within historic periods. This is the case with some river beds, as those of Grenelle, near Paris, and with the successive deposits in old caves of residence.

(3) They may be accompanied by remains of animals now extinct in the regions in question, and whose disappearance and replacement by the modern fauna implies great lapse of time and physical changes; as, for instance, when we find that men have left remains of their feasts holding bones of the extinct

woolly rhinoceros and his contemporaries, or in now temperate climates, those of the reindeer.

(4) The remains themselves may indicate a race or races of men and a condition of the arts of life different from any known in the region in historic times. Thus we may have skulls and skeletons indicating men racially distinct from any now extant, and implements and weapons different from those in use in the times of history or tradition.

We have now to consider what evidence of this kind vindicates the assertion that man existed on our continents in the second continental or post-glacial age, or, as others will have it, in the closing period of the glacial age, and was contemporary with the mammoth and other great beasts now extinct. This evidence, which has been accumulating with great rapidity and relates to many parts of the northern hemisphere, is too voluminous to be reproduced here.[1] But a few examples of it may be given, more especially from parts of the old world whose history extends farthest back and where explorations have been most extensive.

My first instance shall be one originally described by Canon Tristram, and which I had an opportunity to examine in 1884—the caverns or rock shelters in the face of the limestone cliff of the pass of Nahr-el-

[1] Reference may be made to Christy and Lartet, *Reliquiæ Aquitanicæ*; Quatrefages, *Homme Fossile*; Dupont, *L'Homme pendant les Ages de Pierre*; Carthaillac, *La France Préhistorique*; Dawkins, *Cave Hunting* and *Early Man in Britain*; *Fossil Men* and *Modern Science in Bible Lands*, by the author.

Kelb, north of Beyrout. At this place, in old caverns partly cut away in the forming of the Roman road round the cliff, there is a hard stalagmite, or modern limestone, produced by the calcareous drippings from the rock. This is filled with broken bones intermixed with flint flakes suitable for use as knives or spears or darts, and occasional fragments of charcoal. The bones are those of large animals, and have been broken for the extraction of the marrow; and the whole is evidently the remnants of the cuisine of some primitive tribe of hunters, now cemented into a somewhat hard stone by stalagmitic matter. The bones are not those of the present animals of Syria, but principally of an extinct species of rhinoceros (*R. tichorhinus*), a species of bison, and other large mammals which inhabited the region in the pleistocene and post-glacial periods. It is farther known that these animals had been extinct long before the early Phœnicians penetrated into this country, perhaps 3000 B.C., and that the deposits existed in their present state when the early Egyptian conquerors passed this way, at least 1500 B.C., on their march to encounter the Hittites. It is also known that the earliest historic aborigines of the Lebanon, certain rude tribes which seem to have existed there before the migration of the Phœnicians, subsisted on the modern animals of the district, and used flint implements and weapons somewhat differing from those of the earlier cave men of the region.[1] What,

[1] See the illustration on p. 97.

then, were these earlier cave men? Certainly no people known to history, unless those whom we know as antediluvians.[1]

From the Lebanon we may pass to the west of Europe, where in France and Belgium a vast number of interesting relics of palæocosmic man have been discovered, and have been scientifically examined.

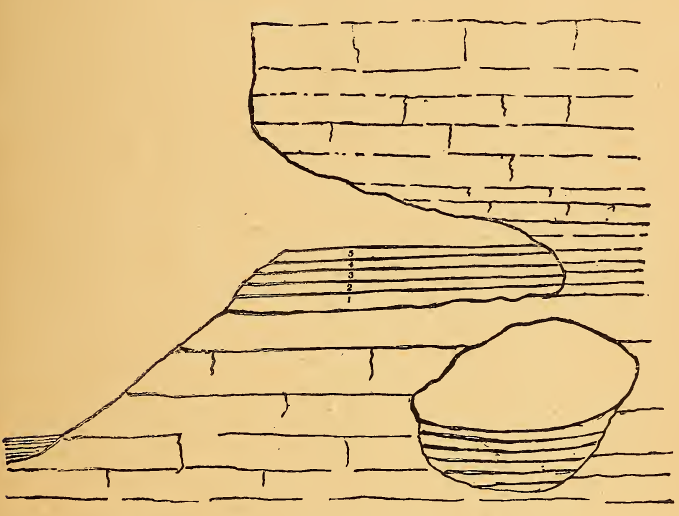
We may take as an illustration the cave of Goyet, on the cliffs bounding the ravine of the Samson, a tributary of the Meuse. This cavern is about forty-five feet above the present ordinary level of the river, but in post-glacial times seems to have been invaded by inundations, as it shows on its floor five distinct ossiferous surfaces, separated by layers of river-mud. These successive surfaces have been carefully examined by M. Dupont, and their contents noted.

On the lowest of these, or the first in order of age, were found numerous skeletons and detached bones of the cave lion and the cave bear; the former a possible ancestor of the lion of Western Asia, the latter closely allied to the grizzly bear of North America, but both entirely extinct in Europe. One of the skeletons of the lion was of unusually large size, and so complete that when set up it forms the principal ornament of the cave collection in the Brussels Museum.

The next surface, the second in order of time, had

[1] For more detailed description see *Modern Science in Bible Lands*; also *Egypt and Syria*, in the *Bypaths of Bible Knowledge*, by the author.

a greater variety of animal remains. The lion had disappeared, and instead hyenas haunted the cave, and had dragged in animal bones to be gnawed. These included remains of the cave bear, wolf, rhinoceros, mammoth, wild horse, wapiti, Irish stag, chamois, reindeer, wild ox, besides several smaller



CAVE OF GOYET, BELGIUM (section after Dupont)

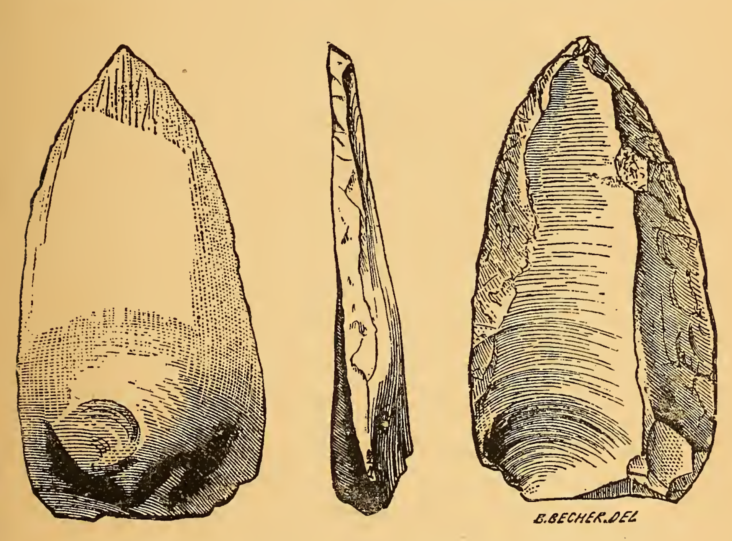
1 to 5, layers of clay deposited in the mammoth ages

animals. The above animals are now all unknown in the fauna of modern Europe, except the reindeer, the chamois, and the wolf. But the most remarkable discovery on this surface was that of a few human bones, gnawed like the others by the hyenas. Man was thus already in the country, and contemporary

with all these animals. How the hyena obtained his bones, whether from some neglected corpse or from some badly-constructed grave, will never be known; but the discovery introduces us to a tribe or family of men coming as immigrants into a region already stocked with many great quadrupeds. They probably did not yet dwell in caves, which, at a later and perhaps more inclement period, formed their homes. Dupont concludes from the condition of the bones that on both the older surfaces the cave bear was the later tenant, and had replaced the lion on the first and the hyena on the second.

The remaining surfaces introduce us to man as a cave-dweller. On the oldest of them are found not only abundance of *débris* of food, but worked flints and bones, objects of ornament, and evidences of the use of fire. The two higher layers show works of art in more varied and improved forms, as if a certain progress in the arts of life had taken place during the occupancy of the cave. Among the objects in the upper layers were red oxide of iron, showing the use of colouring matter for the skin or garments, bone needles, proving the manufacture of clothing by sewing, bone points for darts, skilfully-barbed bone harpoons, ornaments made of perforated teeth of animals, and fragments of bone, and a remarkable necklace of a hundred and twenty-four silicified shells of the genus *Turritella*, looking like spirals of agate, with a pendant made of another and larger shell. These shells are not known to occur

nearer to the cave than Rheims, in Champagne. It is scarcely too much to say that this necklace might be worn by any lady of the present day. A certain amount of imitative art is also shown in the carving of animal and plant forms and fancy devices



LANCE-HEAD FORMED OF A FLINT FLAKE (CAVE OF MOUSTIER)
Similar to weapons found in the Goyet cave. The flat face shows a bulb of percussion (after Falsan)

on pieces of reindeer antler, which may have served for handles of weapons or implements. But objects of much more elaborate design have been found in caverns of this age in France. (See illustrations on pp. 59 and 68.)

The food of these people, in so far as it was of an

animal nature, may be learned from the broken bones, which show that here as elsewhere they carried into their caves only the legs and skulls of the larger animals they killed, leaving the carcases; though it is quite possible that, like North American hunting Indians, they may have stripped off portions of flesh from the back, and preserved the heart, liver, &c., which would of course leave no remains.

Dupont gives lists of the animals in each layer. Those in the lower of the anthropic layers consist of twenty-three species of quadrupeds and some bones of birds. Among the former were the mammoth, the rhinoceros, two species of bear, the horse, the reindeer, two other species of deer and two bovine animals. Even the lion, the hyena and the wolf were eaten by these people. It is interesting to note that the numerical preponderance was in favour of the reindeer and the wild horse, though remains were found indicating seven individuals of the mammoth, and four of the rhinoceros, as having fallen a prey to the old hunters. In the highest bed the number of species and the proportions of each one are nearly the same, so that no material change in the fauna had occurred during the occupancy of this cave. It may also be noted that while Dupont calls this a cave of the mammoth age, the French archæologists are in the habit of naming similar deposits those of the reindeer age. The age of both animals was in reality the same, except that in France the reindeer seems to have survived the mammoth, and

indeed we know this to be the fact from its continuing in the forests of Germany till the Roman times.

This cave may serve as an example of the manner in which the men of the palanthropic age make their appearance. Let it be observed also that this is only one instance selected from many giving similar testimony, and that Dupont adduces evidence to show that there may have been a contemporary plain-dwelling people, of whom less is known than of the troglodytes. Let it also be noted that there are other caves in Belgium, to which we shall return later, which show how the neocosmic men contemporary with the present fauna succeeded the men of the mammoth age.

We may now inquire as to the physical characters of the men of this period. It may be stated in answer to this question that two races of men are known in the palanthropic age, both somewhat different from any existing peoples, and known respectively as the Canstadt and Cro-magnon races. As the latter is the most important and best known, we may take it first, though the former may locally at least have been the older.

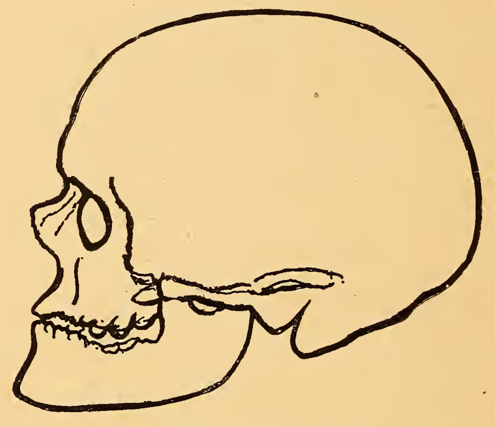
The valley of the little river Vezère, a tributary of the Dordogne, in the south of France, abounding in overhanging rock-shelters, seems to have been a favourite abode of the men of the mammoth and reindeer age. The rock-shelter of Cro-magnon explored by Lartet is one of these, and that of Laugerie Basse is on the opposite side of the same stream.

The former is a shelter or hollow under an overhanging ledge of limestone, and excavated originally by the action of the weather on a softer bed. It fronts the south-west, and, having originally been about eight feet high and nearly twenty deep, must have formed a comfortable shelter from rain or cold or summer sun, and with a pleasant outlook from its front. Being nearly fifty feet wide, it was capacious enough to accommodate several families, and when in use it no doubt had trees or shrubs in front, and may have been further completed by stones, poles, or bark placed across the opening. It seems, however, in the first instance to have been used only at intervals, and to have been left vacant for considerable portions of time. Perhaps it was visited only by hunting or war-parties. But subsequently it was permanently occupied, and this for so long a time that in some places a foot and a half of ashes and carbonaceous matter, with bones, implements, &c., was accumulated. All of these, it may be remarked, belong to the palanthropic age. By this time the height of the cavern had been much diminished, and, instead of clearing it out for future use, it was made a place of burial, in which five individuals were interred. Of these, three were men, one of great age, the other two probably in the prime of life. The fourth and fifth were a woman of about thirty or forty years of age, and the remains of a fœtus.

These bones, with others to be mentioned in connection with them, unquestionably belong to some of

the oldest human inhabitants known in Western Europe. They have been most carefully examined by several competent anatomists and archæologists, and the results have been published with excellent figures in the *Reliquiæ Aquitanicæ*, where will also be found details of their characters and accompaniments, among which last were about three hundred small shells of different species pierced for stringing or attachment to garments. These men are, therefore, of the utmost interest for our present purpose, and I shall try so to divest the descriptions of anatomical details as to give a clear notion of their character. The doubts at one time cast on the age of these skeletons have been removed by the discovery of others at Laugerie Basse, Mentone, &c. They are no doubt palanthropic, though not of the earliest part of the period. The 'Old Man of Cro-magnon' was of great stature, being nearly six feet high. More than this, his bones show that he was of the strongest and most athletic muscular development; and the bones of the limbs have the peculiar form which is characteristic of athletic men habituated to rough walking, climbing, and running; for this is, I believe, the real meaning of the enormous strength of the thigh-bone and the flattened condition of the leg in this and other old skeletons. It occurs to some extent, though much less than in this old man, in American skeletons. His skull presents all the characters of advanced age, though the teeth had been worn down to the sockets without being lost; which, again, is a

character often observed in rude peoples of modern times. The skull proper, or brain-case, is very long —more so than in ordinary modern skulls—and this length is accompanied with a great breadth ; so that the brain was of greater size than in average modern men, and the frontal region was largely and well



OUTLINE OF THE SKULL OF THE 'OLD MAN OF CRO-MAGNON' (after Christy and Lartet)

developed. The face, however, presented very peculiar characters. It was extremely broad, with projecting cheek-bones and heavy jaw, in this resembling the coarse types of the American face, and the eye-orbits were square and elongated laterally in a manner peculiar to the skulls of this age. The nose was large and prominent, and the jaws projected somewhat forward. This man, therefore, had, as to

his features, some resemblance to the harsher type of American physiognomy, with overhanging brows, small and transverse eyes, high cheek-bones, and coarse mouth. He had not lived to so great an age without some rubs, for his thigh-bone showed a depression which must have resulted from a severe wound—perhaps from the horn of some wild animal or the spear of an enemy.

The woman presented similar characters of stature and cranial form modified by her sex, and in form and visage closely resembled her sisters of the American wilderness in the pre-Columbian times. If her hair and complexion were suitable, she would have passed at once for an American-Indian woman, but one of unusual size and development. Her head bears sad testimony to the violence of her age and people. She died from the effects of a blow from a stone-headed pogamogan or spear, which has penetrated the right side of the forehead with so clean a fracture as to indicate the extreme rapidity and force of its blow. It is inferred from the condition of the edges of this wound that she may have survived its infliction for two weeks or more. If, as is most likely, the wound was received in some sudden attack by a hostile tribe, they must have been driven off or have retired, leaving the wounded woman in the hands of her friends to be tended for a time, and then buried, either with other members of her family or with others who had perished in the same skirmish. Unless the wound was inflicted in sleep,

during a night attack, she must have fallen, not in flight, but with her face to the foe, perhaps aiding the resistance of her friends or shielding her little ones from destruction. With the people of Cro-magnon, as with the American Indians, the care of the wounded was probably a sacred duty, not to be neglected without incurring the greatest disgrace and the vengeance of the guardian spirits of the sufferers.

Unreasonable doubts have been cast on the burial of the dead by palæocosmic men. The burial of men of the Cro-magnon race at that place and at Laugerie Basse and Mentone is established by the most unequivocal evidence; and interments of men of the Canstadt race have been found at Spy, in Belgium. Of course, even if interment proper had not been practised, there might have been cremation, as among the Tasmanians, or burial on stages or in huts, as among some American Indians. Still, that interment was practised we know, and this carries with it the certainty that our palæocosmic men must have had some simple ideas of religion.

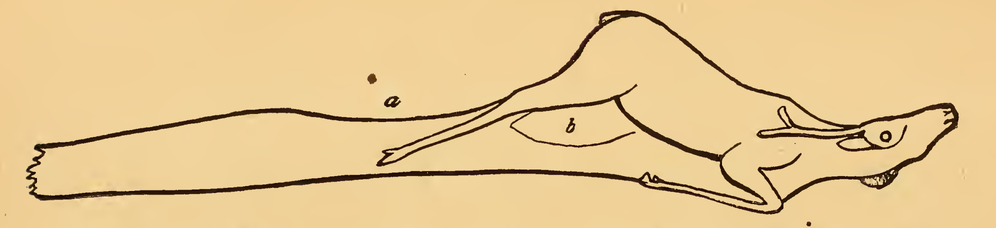
The skulls of these people have been compared to those of the modern Esthonians or Lithuanians; but on the authority of M. Quatrefages it is stated that, while this applies to the probably later race of smaller men found in some of the Belgian caves, it does not apply so well to the people of Cro-magnon. Are, then, these people the types of any ancient, or of the most ancient, European race? The answer is that



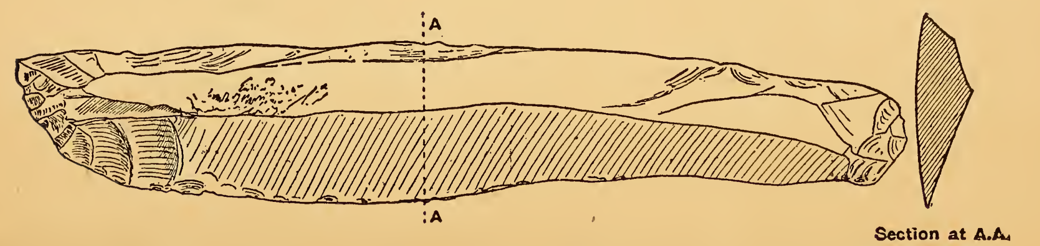
THE FIRST SKELETON FOUND IN THE MENTONE CAVES
(after Rivière)

they are types of the cave men of the mammoth age in Europe. Another example is the remarkable skeleton of Mentone, in the south of France, found under circumstances equally suggestive of great antiquity. Dr. Rivière, in a memoir on this skeleton, illustrated by two beautiful photographs, shows that the characters of the skull and of the bones of the limbs are similar to those of the Cro-magnon skeleton, indicating a perfect identity of race, while the objects found with the skeleton are similar in character. I had an opportunity of verifying his description by an examination of the skeleton in the Museum of the Jardin des Plantes, in 1883; and more recent discoveries at Mentone have confirmed the conclusion that this man really represents a race of giants, some of them seven feet high, who inhabited Southern Europe in the palanthropic age. A similar skeleton found by Carthaillac, at Laugerie Basse, was buried under a great thickness of accumulated *débris* of cookery, as well as of large stones fallen from above. This skeleton had its shell ornaments in place on the forehead, arms, legs and feet, in a manner which would induce the belief that they had been attached to a head-dress, sleeves, leggings, and shoes or mocasins. (See illustration on p. 79.)

The ornaments of Cro-magnon were perforated shells from the Atlantic and pieces of ivory. Those at Mentone were perforated *Neritinæ* from the Mediterranean and canine teeth of the deer. In both cases there was evidence that these ancient people

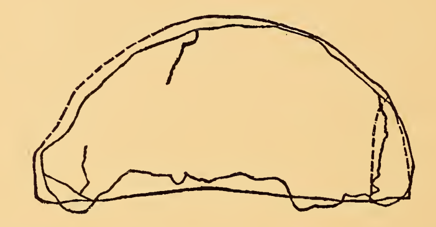


HANDLE OF A PIERCER, OR BODKIN, IN BONE, FROM LAUGERIE BASSE, IN FORM OF A DEER
(*a*) Hollow for thumb ; (*b*) hollow for finger. Reduced to one-half. From a cast of the original



FLINT FLAKE KNIFE, FOUND IN THE HAND OF THE 'GIANT' SKELETON OF MENTONE
(after Evans)

painted themselves with red oxide of iron, and used bodkins of bone, and long and beautifully-formed flint knives, perhaps for dividing their food, or perhaps for sacrificial purposes. Skulls found at Clichy and Grenelle in 1868 and 1869 are described by Professor Broca and M. Fleurens as of the same general type, and the remains found at Gibraltar and in the cave of Paviland, in England, seem also to have belonged to this race. The celebrated Engis skull from one of

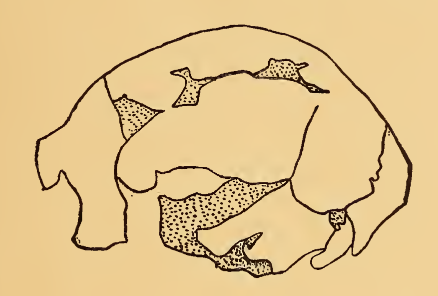


NEANDERTHAL SKULL—TWO OUTLINES: THE OUTER GIVING THE MORE CORRECT FORM (from *Science*)

the Belgian caves, which is believed to have belonged to a contemporary of the mammoth, is also of this type, though less massive than that of Cro magnon; and lastly, even the somewhat degraded Neanderthal skull, found in a cave near Düsseldorf, though, like those of Clichy, Canstadt, Spy and Gibraltar, inferior in frontal development, is referable to the same peculiar long-headed style of man, in so far as can be judged from the portion that remains, though certainly to a ruder and more degraded variety, com-

monly known as the Canstadt man as distinguished from the Engis or Cro-magnon.

Let it be observed, then, that these skulls are probably the oldest known in the world, and they are all referable to two varieties of one race of men ; and let us ask what they tell as to the position and character of palanthropic man. The testimony is here fortunately well-nigh unanimous. All anatomists



SKULL OF CANSTADT TYPE FOUND AT SPY, BELGIUM, BY FRAIPONT AND LOHEST

and archæologists admit the high and human character of the Engis and even the Neanderthal skulls.

Broca, who has carefully studied the Cro-magnon skulls, has the following general conclusions : ‘The great volume of the brain, the development of the frontal region, the fine elliptical profile of the anterior portion of the skull, and the orthognathous form of the upper facial region, are incontestably evidences of superiority, which are met with usually only in the civilised races. On the other

hand, the great breadth of face, the alveolar prognathism, the enormous development of the ascending ramus of the lower jaw, the extent and roughness of the muscular insertions, especially of the masticatory muscles, give rise to the idea of a violent and brutal race.'

He adds that this apparent antithesis, seen also in the limbs as well as in the skull, accords with the evidence furnished by the associated weapons and implements of a rude hunter-life, and at the same time of no mean degree of taste and skill in carving and other arts. He might have added that this is the antithesis seen in the American tribes, among whom art and taste of various kinds, and much that is high and spiritual even in thought, coexisted with barbarous modes of life and intènse ferocity and cruelty. The god and the devil were combined in these races, but there was nothing of the mere brute.

Rivière remarks, with expressions of surprise, the same contradictory points in the Mentone skeleton: its grand development of brain-case and high facial angle—even higher apparently than in most of these ancient skulls—combined with other characters which indicate a low type and barbarous modes of life.

Another point which strikes us in reading the descriptions of these skeletons is the indication which they seem to present of an extreme longevity. The massive proportions of the body, the great

development of the muscular processes, the extreme wearing of the teeth among a people who predominantly lived on flesh and not on grain, the obliteration of the sutures of the skull, along with indications of slow ossification of the ends of the long bones, point in this direction, and seem to indicate a slow maturity and great length of life in this most primitive race.

The picture would be incomplete did we not add that Quatrefages has described a single skull, that of Truchère, from deposits of this age, which shows that these gigantic men were contemporaneous with a feebler race of smaller stature and with different cranial characters, and inhabiting in all likelihood a more eastern region.

It is further significant that there is evidence to show that the larger and stronger race was that which prevailed in Europe at the time of its greatest elevation above the sea and greatest horizontal extent, and when its fauna included many large quadrupeds now extinct. This race of giants was thus in the possession of a greater continental area than that now existing, and had to contend with gigantic brute rivals for the possession of the world. It is also not improbable that this early race became extinct in Europe in consequence of the physical changes which occurred in connection with the subsidence that reduced the land to its present limits, and that the feebler race which succeeded came in as the appropriate accompaniment of a diminished land-surface

and a less genial climate in the early historic period. The older races are those usually classed as palæolithic, and are supposed to antedate the period of polished stone; but this may, to some extent, be a prejudice of collectors, who have arrived at a foregone conclusion as to distinctions of this kind. Judging from the great cranial capacity of the older race and the small number of their skeletons found, it might be fair to suppose that they represent rude outlying tribes belonging to nations which elsewhere had attained to greater population and culture.

Lastly, all of these old European races were Turanian, Mongolian, or American in their head-forms and features, as well as in their habits, implements, and arts. In other words, their nearest affinities were with races of men which in the modern world are the oldest and most widely distributed.

The reader, reflecting on what he has learned from history, may be disposed here to ask, Must we suppose Adam to have been one of these Turanian men, like the 'Old Man of Cro-magnon'? In answer, I would say that there is no good reason to regard the first man as having resembled a Greek Apollo or an Adonis. He was probably of sterner and more muscular mould. But he was probably more akin to the more delicate and refined race represented by the solitary skull of Truchère, while the gigantic palæocosmic men of the European caves are more likely to have been representatives of that terrible and powerful race who filled the ante-

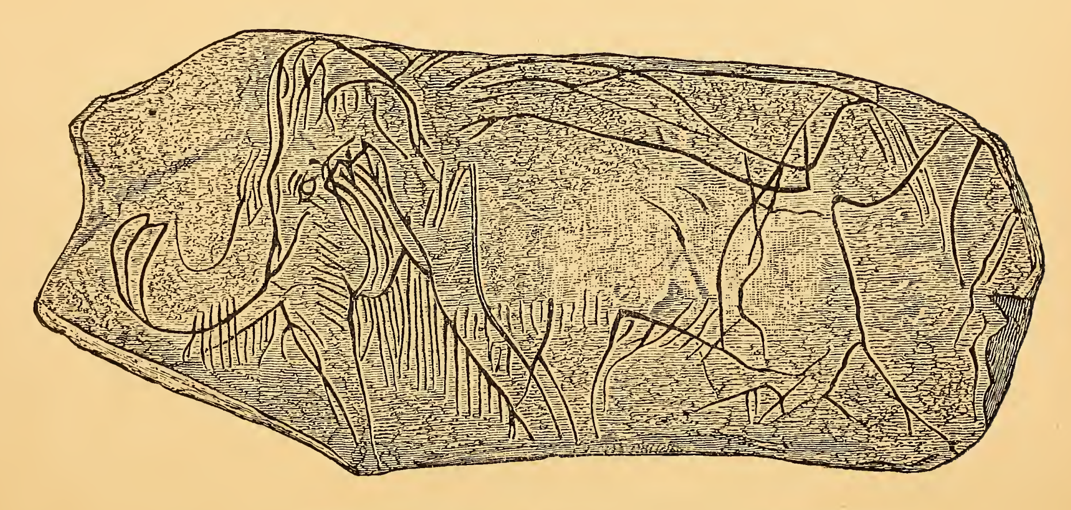
diluvian world with violence, and who reappear in postdiluvian times as the Anakim and traditional giants, who constitute a feature in the early history of so many countries. Perhaps nothing is more curious in the revelations as to the most ancient cave men than that they confirm the old belief that there were 'giants in those days.' At the same time we must bear in mind that the more diminutive race which survived must have existed previously in some part of the world, and must have furnished the survivors of the succeeding subsidence (see illustration on p. 82).

And now let us pause for a moment to picture these so-called palæolithic men. What could the 'Old Man of Cro-magnon' have told us, had we been able to sit by his hearth and listen understandingly to his speech?—which, if we may judge from the form of his palate-bones, must have resembled more that of the Americans or Mongolians than of any modern European people. He had, no doubt, travelled far, for to his stalwart limbs a long journey through forests and over plains and mountains would be a mere pastime. He may have bestridden the wild horse, which seems to have abounded at the time in France, and he may have launched his canoe on the waters of the Atlantic. His experience and memory might extend back a century or more, and his traditional lore might go back to the times of the first mother of our race. Did he live in that wide post-pliocene continent which extended westward through Ireland? Did he know and had he visited the more

cultuerd naitons that lived in the great plains of the Mediterranean Valley, or on that nameless river which flowed through the land now covered by the German Ocean? Had he visited or seen from afar the great island Atlantis, whose inhabitants could almost see in the sunset sky the islands of the blest? Could he have told us of the huge animals of the antediluvian world, and of the feats of the men of renown who contended with these animal giants? We can but conjecture all this. But, mute though they may be as to the details of their lives, the man of Cro-magnon and his contemporaries are eloquent of one great truth, in which they coincide with the Americans and with the primitive men of all the early ages. They tell us that primitive man had the same high cerebral organisation which he possesses now, and, we may infer, the same high intellectual and moral nature, fitting him for communion with God and headship over the lower world. They indicate also, like the mound-builders, who preceded the North American Indian, that man's earlier state was the best—that he had been a high and noble creature before he became a savage. It is not conceivable that their high development of brain and mind could have spontaneously engrafted itself on a mere brutal and savage life. These gifts must be remnants of a noble organisation degraded by moral evil. They thus justify the tradition of a Golden and Edenic Age, and mutely protest against the philosophy of progressive development as applied to man, while they bear

witness to the similarity in all important characters of the oldest prehistoric men with that variety of our species which is at the present day at once the most widely extended and the most primitive in its manners and usages.[1]

[1] Perhaps no feature of this early human age is more remarkable than its artistic productions. Recent testimony, more especially that of the very careful explorers of the deposits at Spy, in Belgium, seems to show existence of the potter's art, though this until lately was denied. These people ornamented their clothing with pearly and coloured shells, and made beautiful necklaces. We have already noticed that found in the cave of Goyet. At Sordes, in the Pyrenees, in a very old interment of this period, there was a necklace of forty-three teeth of the cave lion and cave bear, carved with figures of animals (see p. 71). The handle of a piercer, represented on p. 59, is a marvel of skilful adaptation of an animal form to produce a handle fitted to be firmly and conveniently grasped by the human hand. The figure of the mammoth on p. 68 shows how a few bold lines may produce a vigorous and truthful sketch ; and multitudes of such carvings and drawings have been found in France as well as in Germany and Belgium. Even the chipping of flint is an art requiring much skill to produce the fine knives, spears, &c., so commonly found, and there is evidence that these were fitted into strong and probably artistic handles. All this and much more testifies to the fact that our palæocosmic men were no mean artists as well as artificers.



OUTLINE OF MAMMOTH, CARVED ON A PLATE OF IVORY, FROM THE CAVE OF LA MADELEINE

CHAPTER V

SUBDIVISIONS AND CONDITIONS OF THE PALANTHROPIC AGE

WHILE all geologists and archæologists are agreed in the existence of the men contemporary with the mammoth and reindeer in Europe, and in the fact of two or even three races of men having existed in that period, various opinions are entertained as to the succession of events and the chronological classification of the remains. Mortillet, whose arrangement has been usually adopted in France, recognises a period of chipped stone or palæolithic period, corresponding to the palanthropic age, and a period of polished stone, corresponding to the neanthropic age. Within the former he believes that it is possible to separate different ages,[1] from the character of the implements and other remains. The first two are characterised by the presence of two elephants, the mammoth and another species (*E. antiquus*), the next two by the mammoth associated with the cave bear

[1] Respectively the Achulienne, Chellienne, Mousterienne, Soloutrienne, and Magdalenienne.

and reindeer, the last by the nearly entire predominance of the reindeer. Dupont is content in Belgium to recognise a mammoth age and a reindeer age, but the latter perhaps includes some deposits which are properly neanthropic.

Carthaillac places the whole palanthropic age as quaternary, properly so-called, which he separates from the tertiary on the one hand and the modern on the other, and divides his quaternary into two stages, the first characterised by *E. antiquus* and Mortillet's Chellean men, the second by the mammoth and reindeer—the earlier of these two periods being warm and moist, the latter cold and dry. The table appended to this chapter is modified from those of Carthaillac. Dawkins, while admitting a similar twofold division, calls the earlier men those of the river gravels, the latter those of the caves.

This twofold division of the palanthropic age requires some consideration. In the first place, there is reason to believe that the Canstadt race locally preceded that of Cro-magnon. I say locally, for no one supposes that they are distinct species, and as varietal forms they may have originated from a common intermediate ancestor, or the humbler race may be the earlier, and the higher race an improvement on it, or the lower race may have been a degraded type of the higher. Probably also there was a third, the Truchère race, and the Cro-magnon race may have been a half-breed or metis progeny.

Again, there was an undoubted change of fauna

within the palanthropic age, and this dependent on or accompanied by a change of climate. The earlier elephant of the period (*E. antiquus*) and its companion animals are believed to have been suited to a warm climate, and to have entered Europe from the south-east. With, or immediately after, them came man, and this conclusion harmonises with human physiology, for we know that man must have originated in a warm climate, and must in the first place have been a feeder on fruits and grains or other nutritious



TOOTH OF CAVE BEAR, WITH ENGRAVING OF A SEAL, FROM A COLLAR FOUND AT SORDES, PYRENEES (after Carthaillac)

vegetable products. In this early stage he would be nearly destitute of implements and weapons. But in the succeeding cold period, one tribe after another might be obliged to resort to hunting habits, to the use of fire and of clothing, and of natural and artificial shelter. Hence the peculiarities of the cave men, who, while they advanced in art, may have also advanced in ferocity and warlike habits, under the pressure of necessity and competition. Hence also their association more and more closely with such

animals as the reindeer, the hairy mammoth, and the woolly rhinoceros, while the previous species had migrated to the south or perished. Thus it would appear that the men of the mammoth age may not be really the most primitive men, but a derivative from them under pressure of a severe climate. This possibility may be summed up as follows. If the early part of the post-glacial or palanthropic era was characterised by a milder climate than its later period, this may have had much to do with the change in implements and weapons. The earliest men probably subsisted merely on natural fruits and other vegetable productions. To secure these in a mild climate they would require no implements, except perhaps to dig for roots or to crack nuts. If they migrated into a colder climate, or if the climate became more severe, they might be obliged to become hunters and fishermen, and would invent new implements and weapons, not because they had advanced in civilisation, but, as Lamech has it in Genesis, 'because of the ground which the Lord had cursed,' and which would no longer yield food to them. At the same time they might contend with one another for the most sheltered and productive stations, and so war might further stimulate that very questionable advance in civilisation which consists in the improvement of weapons of destruction. We have much to learn as to these matters; but we must, if we have any regard to physiology and to natural probability, start from the idea that the most primitive men were frugivorous and

fitted for a mild climate. In this case we should expect that these earliest men would leave behind them scarcely any weapons or implements except of the simplest kind, and that their apparent progress in the arts of war and the chase might in reality be evidence, up to a certain point at least, of increasing barbarism. Primitive as well as modern men present in these respects strange paradoxes.

We have to inquire in the sequel as to the cause of the final disappearance of the palæocosmic men, and as to the question whether history is cognisant of any such human period as that which has occupied us in this chapter, or whether, as has sometimes been assumed, it is altogether prehistoric.

On the subject of the correlation of the French and Belgian discoveries as to primitive man, a most interesting and important communication was made by Dupont to the Geological Society of Belgium in 1892.[1] The veteran explorer of the Belgian caves addresses himself in this paper to a careful comparison of the geological relations, animal remains and human relics in these caves, and in the gravels and 'quaternary' clays associated with them. He arrives at the conclusion, which I had already stated,[2] that these deposits are contemporaneous and show similar stages, but that the mammoth age properly so-called, in which the primitive people fed on the mam-

[1] *Bulletin de la Société Belge de Géologie*, janvier 1893. This paper should be studied by all interested in the subject.

[2] *Fossil Men.*

moth and its companion the woolly rhinoceros, extended to a later date in Belgium than in France, so that the mammoth age of Dupont and the reindeer age of the French archæologists overlap one another. He notes in connection with this that there is evidence of the continued existence of the mammoth in the so-called reindeer age of France, in the discovery in caves of that period of plates of ivory with the portrait of the mammoth engraved on them. It would therefore appear either that the mammoth earlier became extinct or rare in France, perhaps on account of climatal changes, or perhaps because of destruction by man, or that the habits of the French populations changed in such a way as to cause them to confine themselves to smaller game. In either case, we now find that the whole palanthropic age is one period. On the other hand, Dupont agrees with Mortillet that there is a hiatus, physical, palæontological and anthropological, between the so-called palæolithic and neolithic periods, that is, between the palanthropic and neanthropic ages.

Dupont holds that the plain-dwellers (*Pedionomytes*, as he calls them) were the earliest known men, corresponding to the oldest gravel remains of Dawkins and Prestwich, and points out that their implements are in size and form, though not in material and finish, allied to those of the polished stone age, which might thus be regarded as an improved continuation or revival of this first period. This might be read to mean, as above maintained, that the earliest men were

peaceful and perhaps in part agricultural, that they were succeeded by lawless, powerful, artistic and savage peoples, and when the latter were swept away that a remnant of the primitive stock repossessed the land. If this proves to be the net result, it will correspond exactly with our old historical beliefs.

I was struck in reading this paper with a remark of Dupont on the unprogressive character of the men of the mammoth age, who seem to have made so little advance in the arts of life during the period of their occupation of Europe. Perhaps he makes too great an estimate of the length of their residence, or does not sufficiently consider how long men about their stage of civilisation have remained at the same point in the historic period. Nor does he consider the possibility of the cave men belonging to ruder tribes of a race which may have inhabited better if more perishable residences elsewhere. In any case, all experience shows that to such a people any great advance in the arts could come only by missionary influence from abroad, or by the appearance of some great inventive genius among themselves; and no good fortune of this kind seems to have happened to the Canstadt or Cro-magnon men, or if it did, they rejected their opportunity, as so many others have since done.

Still, perhaps, we need not pity them too much. They lived in a young and fresh condition of the earth, enjoyed a vigorous health, and were gifted with rare strength and energy. They were bountifully

provided for by nature as to food and clothing, were in slavery to no man, lived in families bound together by ties of affection, and were free to migrate over vast territories according to the exigencies of the seasons. They had some taste in dress and ornaments, and no doubt enjoyed their clever carvings on bone and ivory as much as any modern lovers of art their most finished treasures. A Cro-magnon 'brave,' tall, muscular and graceful in movement, clad in well-dressed skins, ornamented with polished shells and ivory pendants, with a pearly shell helmet, probably decked with feathers, and armed with his flint-headed lance and skull-cracker of reindeer antler handsomely carved, must have been a somewhat noble savage, and he must have rejoiced in the chase of the mammoth, the rhinoceros, the bison, and the wild horse and reindeer, and in launching his curiously-constructed harpoons against the salmon and other larger fish that haunted the rivers.

Nor was he destitute of higher hopes. He laid his dead reverently in the bosom of mother earth, with such things as had been pleasant or useful in life, and his rudimentary bible, or 'book of the dead,' must have at least included the idea—'This corruptible shall put on incorruption, this mortal immortality.' That is the meaning of such funeral gifts in every part of the world, and has always been so, as far as we can learn. But the belief in immortality implies also a belief in a God or gods. For if there is a spiritual world for the dead, there must be a Power to care for

them there. Whether these beliefs were originally implanted in him when God breathed into his nostrils the breath of life, or were taught to him by special revelation, we do not know, but they were there as a foundation on which he could, with the aid of his sense of right and wrong, build a happy and harmless life. That he did not always do so we have some sad evidence, to be gathered even from his bones ; and the testimony of tradition is that his great sin was that of inhuman violence, and it was for this that he was swept away by the Flood, and replaced by men of more peaceful mould, whom but for that catastrophe he would soon have annihilated.

Carthaillac[1] devotes a chapter to the mortuary customs of the men of the quaternary (palanthropic) age. He shows that the statement sometimes made that these men did not care for the dead is entirely incorrect, though he believes that we know comparatively little of their burials, owing to the circumstance that only those in caverns were likely to be preserved or discovered. The discoveries at Spy, in Belgium, show that even the Canstadt race, the lowest in development, and probably in art, interred the bodies of their dead, while a large number of interments of the Cro-magnon race are known. He calls attention to the fact that in all of these the body lies on its side. The hands are brought up to the head or neck, and the knees are bent, sometimes slightly, sometimes very strongly, so as to give the body a

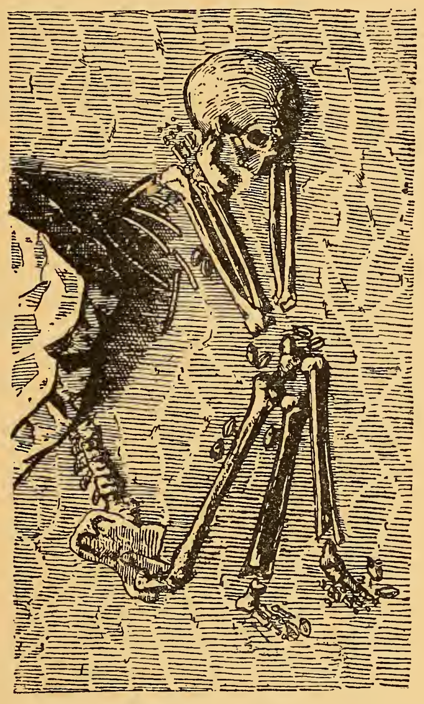
[1] *Homme Préhistorique.*

crouching posture (p. 79). The idea seems to have been to place the body in the attitude of sleep or of rest. The deceased was arrayed in the garments and ornaments worn during life, and not infrequently a quantity of red oxide of iron was buried with, or has been scattered over, the body. Flint knives and lances seem often to have been placed with the dead. It is needless to say that all this recalls the burial customs of many rude tribes of men up to modern times.

There is some reason to believe that occasionally, at least, the flesh has been partially removed from the bones before interment. This reminds us of the custom of some American tribes, who were in the habit of disinterring the dead after a temporary burial, carefully cleaning the bones, and then placing them wrapped in skins in their tribal ossuaries. It would seem, however, that the primitive men when they removed the flesh did so in a recent state. Perhaps this practice was resorted to only when the body had to be kept for some time, or carried some distance for interment. If the body was disembowelled and the remaining flesh and ligaments dried, it would be reduced very nearly to the condition of the imperfect mummies of the Guanches of the Canaries and of the Peruvians. Thus we may suppose that we have here a rudimentary condition of the art of the embalmer.

Some questions still remain as to the races of men actually known to us in the palanthropic age. It has already been explained that in the earliest part of

this period, that characterised by the presence of the *Elephas antiquus* in Europe, there are evidences of the existence of man, and this in a more genial



THE SKELETON OF LAUGERIE BASSE, DORDOGNE, SHOWING THE POSITION OF THE PERFORATED SHELLS ON THE LIMBS AND FOREHEAD (after Carthaillac)

climate than that prevailing later. Of these men we have no certain osseous remains. Should these be found, we may anticipate that their characters would

be peculiar, and would indicate a frugivorous rather than a carnivorous mode of life, and less of rude power than that evidenced by the Canstadt and Cro-magnon races.

Of the latter, though both are of the same faunal period, and therefore geologically contemporaneous, the former, the lower of the two in point of physical development, is apparently in Western Europe the older, and represents the earlier part of the mammoth age, when the climate had become cooler and *Elephas primigenius* had succeeded to *E. antiquus.* The Cro-magnon race, beginning in this period, goes on to the close of the mammoth age, which, as already stated, coincides with the reindeer age of the French archæologists. This Cro-magnon race I am disposed to regard as a mixed or half-breed tribe, produced by the union of the Canstadt peoples with the higher race already hinted at. This last may possibly be represented by a few skulls more resembling those of the men of the neanthropic age, which are occasionally found in the burials of the Cro-magnon people, and of which that found at Truchère has been already referred to.

We have thus traces of two primitive or antediluvian races, one probably mild and subsisting on vegetable food, and another fierce, rude and carnivorous, perhaps a product of degeneracy of the former; and a third, or mixed race, of greater physical power and energy than either of the others. This is of course merely a hypothetical reading of the facts,

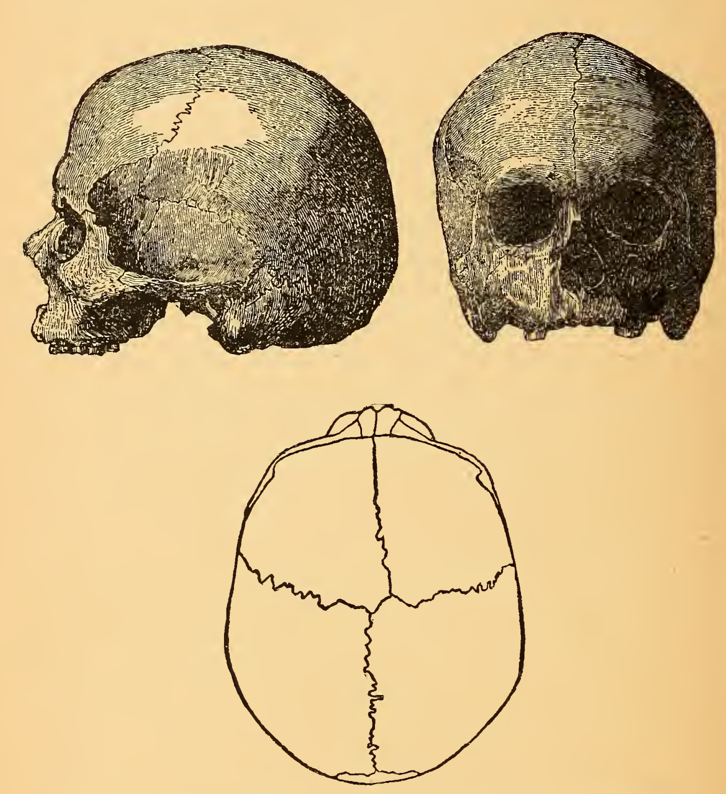
but it is by no means improbable, and would, as we shall see, bring them into close relation with the teachings of history and tradition as to the antediluvian age.

The most careful and elaborate studies of these several types have been made by MM. Quatrefages and Hamy. The former sums up the races of fossil or 'quaternary' men as six in number, viz.: (1) The Canstadt; (2) the Cro-magnon; (3) the mesito-cephalic race of Furfooz; (4) the sub-brachycephalic race of Furfooz; (5) the race of Grenelle; (6) the race of Truchère. Of these only three (namely, Nos. 1, 2, and 6) properly belong to the palanthropic age. The races of Furfooz[1] and of the upper beds of Grenelle are neanthropic, because they are found with the animal remains of that age, and they resemble in cranial characters the neanthropic peoples.

The Canstadt and Cro-magnon races resemble each other in being long-headed or dolichocephalic, and in having strong and coarsely-made facial bones, but the Canstadt race has a comparatively low fore-head with strong superciliary arches, and round eye-sockets. The Cro-magnon race has a brain-case of more than ordinary capacity, a more elevated fore-head, and eye-sockets singularly elongated horizon-tally. Broca has measured the cubic contents of the Cro-magnon skull, and gives as the result 1,590 cubic centimetres, or 119 centimetres more than the average

[1] Noticed later, in Chapter VII.

of 125 modern Parisian skulls. The Canstadt men were of moderate stature, but strongly built and



SKULL FROM TRUCHÈRE, SHOWING A PECULIAR PALANTHROPIC TYPE ALLIED TO NEANTHROPIC RACES (after Quatrefages)

muscular. The Cro-magnon race was of great stature, some skeletons approaching to seven feet in height,

and affording evidence of immense muscular development.

The race of Truchère is represented by only a single skull; but Quatrefages vouches for it as belonging to the age of the mammoth. It is a well-formed brachycephalic cranium of unusually great internal capacity, and would be regarded anywhere as indicating a race of high and refined cerebral endowment. If really of the mammoth age, it may have belonged to a straggler or captive from a higher and more cultured tribe, introduced accidentally into a sepulchre of the Cro-magnon period. It connects itself with the speculation in the preceding pages as to the existence of such a race. This skull resembles, as we should expect, the type of the neanthropic men who spread over the earth at the beginning of that later age.

TABLE SHOWING RELATIONS OF LATER CENOZOIC AGES IN EUROPE

Geological Periods	Geography and Climate	Fauna	Periods	Epochs
Modern or neanthropic	The actual climate and geographical arrangements	Modern quadrupeds, including domestic animals	So-called of Iron, Bronze, and Polished Stone	Recent Roman Gaulish Iberian
Post-glacial or palanthropic	Cold and dry, with widely extended continents. Extension of glaciers —— Warm and moist, extended continents	Reindeer, mammoth (Elephas primigenius), hairy rhinoceros (R. tichorhinus), &c. —— Elephas antiquus and R. Merkii	So-called palæolithic or Age of Chipped Stone	Magdalenian Soloutrian Mousterian Chellean
Pleistocene or glacial	Glacial period. Submergence and diminished continents	Arctic animals and plants	No certain trace of Man	
Pliocene	First continental period Mild climate	Elephas meridionalis, Rhinoceros leptorhinus, and other extinct mammals		

Later cenozoic

CHAPTER VI

END OF THE PALANTHROPIC AGE

THE palanthropic age came to a tragic end, and is somewhat definitely separated from that which succeeded it. This appears from several considerations which are too often overlooked by writers who have a prejudice in favour of everything passing imperceptibly and by slow degrees into that by which it is followed —an exaggerated uniformitarianism beyond that of Lyell, but in harmony with the hypothesis of Darwin, to which many anthropologists appear to tie themselves hopelessly.

Three facts are here specially important. The Canstadt and Cro-magnon races are physically different from any modern races, and give place at the close of this age to peoples as distinct from them as any now existing, and who, on the other hand, while separated from the palæocosmic men preceding them, are linked with the races of modern times. It is no doubt true that occasional and abnormal human skulls may to this day be seen on living men which are more or less of the Canstadt or Cro-magnon

type. These are good evidences of the unity of man through all the ages, but no race exists having all the peculiarities of these ancient peoples, which thus belong not to a distinct species but to a distinct racial variety of man.

Secondly, at the close of the palanthropic age we find a great change in land animals—a number of important species hunted by early man having disappeared, and the more meagre modern fauna having come in at once. Thus it may be affirmed that the land fauna of this primitive time was distinct from that now living. This implies either long time or a great physical break.

Thirdly, this change of fauna consists not so much in the introduction of new species as in the extinction of old forms, either absolutely or locally; and this agrees with the fact of diminution of land area, since it seems to be a law of the geological succession that increasing land brings in new land animals; diminishing land area leads to extinction, and not to introduction.

Fourthly, in accordance with this we find that, at the close of the palanthropic age, the continents of the northern hemisphere experienced a subsidence from which they have only partially recovered up to the present time, and which introduced the modern geographical and climatal features. This appears from raised beaches and beds of rubble, loam and loess of modern date overlying the *débris* of the glacial period and holding the remains of post-glacial animals. These are widely spread over the whole

northern hemisphere, and ascend in some districts to high levels. An interesting illustration has recently been given by Dr. Nuesch and M. Boule, in the deposits under a rock-shelter at Schweizersbild, near Schaffhausen.[1] These show an overlying deposit with 'neolithic' implements and bones of recent animals, a bed of rubble and loam destitute of human remains, and below this a bed containing bone implements, worked flints, and traces of cookery of the palanthropic period. The whole rests on a bed of rolled pebbles, supposed to be the upper part of the glacial deposits. This shows the interval between the palanthropic and neanthropic periods, and also the post-glacial date of man in Switzerland, and it accords with a great many other instances.

Were these changes sudden or gradual? Experience has no answer, for no similar events have occurred in historic times, and though there are records in the geological history of many mutations in the elevation of the land, we have no information as to their rate of progress, and we know little of their causes. The changes of this kind known to us in modern times are merely local, not general, and in regard to their rate are of two kinds. Some are abrupt and accompanied with earthquake shocks. These are very local, and usually occur in regions of volcanic activity. Others are so slow and gradual as to be scarcely perceptible, and are often of wider

[1] *Nouvelles archives des Missions*, &c. vol. iii. Noticed in *Natural Science*, 1893.

distribution. It is evident, however, that these slight and local phenomena furnish but little clue to the mutations of past periods. These were on a far grander scale and affected vast areas. We have no modern instances of these almost world-wide depressions of continents under the sea, though we know that these have occurred, one of them within the human period, and it is idle to speculate as to their rate or duration in the absence of facts. We know pretty certainly, however, from the gauges of time which can be applied to the close of the glacial period, that this latest subsidence must have occurred within six thousand years of our time.

With reference to the particular movement in question, we know that the close of the palanthropic period was accompanied by a movement at least equal to the difference between the wide lands of the second continental period and the shrunken dimensions of the present lands. Besides this we find on the surface of the land modern raised beaches, deposits of loess and plateau gravels, intrusions of mud into caves of considerable elevation, and evidences, as in Siberia, of large herds of animals perishing on elevated lands on which they seem to have taken refuge.[1] In short, no geological fact can be better established than the post-glacial subsidence.

[1] Prestwich, 'Evidence of Submergence of Western Europe,' *Trans. Royal Society*, 1893; 'Possible Cause for the Origin of the Tradition of the Flood,' *Trans. Vict. Inst.*, 1894; Dawkins, *Journal Anthrop. Inst.*, February 1894. Kingsmill and Skertchly (*Nature*, November 10, 1892) report the Asiatic loess to be marine, and to extend far upward on the

Putting these facts together, we cannot doubt that the submergence at the close of the palanthropic age was very considerable, and that it was followed by a partial re-emergence. Further, there is no evidence of any serious fractures or folding of the crust taking place at the time, though it is possible that great lava ejections like some of those of Western America may belong to this period. It is therefore allowable to suppose that the cause of submergence may have been either depression of the land, or elevation of the bed of the ocean throwing its waters over the land, or possibly a combination of both. Movements of these kinds have recurred again and again in geological time. Their causes are mysterious, but their effects have been of the most stupendous character. Fortunately, they occur at rare intervals, and that to which we are now referring is the last of which we have any record, and differs from all others in having occurred at a time when man was widely spread over the world.

The geological chronometers already referred to inform us that the land of the northern hemisphere rose from the great pleistocene submergence about eight thousand to ten thousand years ago, and the second continental period, with its forests and its teeming and widely-extended animal and human life, may have been established within two thousand

Caspian plain and the Pamirs, so that all Asia must have been submerged within a very recent period. See also *Fossil Man*, by the author, 1880.

years of that time, or say six thousand to eight thousand years ago. How long the second continental or palanthropic period continued intact we do not know, but we can scarcely allow it less than two thousand years. Perhaps it was considerably longer. Now on historical evidence produced by Egypt, Chaldea, and other ancient countries in the Mediterranean region, we can trace the neanthropic age continuously back to, say, three thousand years B.C., or nearly five thousand years in all. Adding to this two thousand years for the palanthropic age, we are carried back to a time within one thousand years of the earliest we can assign on geological grounds to the termination of the great glacial period. Therefore, unless we suppose the last continental subsidence to have begun some time before the close of the palanthropic age, and to have continued to some degree into the beginning of the neanthropic, we cannot assign to it a very long time. That it could not have been sudden in the sense of being instantaneous is evident, because in that case terrestrial denudation of a stupendous character must have ensued, and no animal life except that of mountain tops and elevated table-lands could have escaped its destructive effects, but that it was by no means secular or long-continued is certain.

Thus we seem shut up to the conclusion that the close of the palanthropic age was marked by great geological vicissitudes of the character of submergence, leading primarily to vast destruction of

animal life, and secondarily to permanent changes both in geography and climate, under which new conditions the neanthropic age was inaugurated. How this took place we have to inquire in the sequel. In the meantime we may merely remark that since the two principal races of primitive men known to us in Europe seem to have perished, we must infer that individuals of a third race beyond the limits of Europe were destined to survive, and again to replenish the earth in the new era, and that possibly these may be represented by the solitary Truchère skull. In the case of many of the more bulky and unwieldy animals inhabiting the plains the case was different. They perished, or if any survived the submergence they were unable to multiply under the new conditions.

Desperate attempts have been made in the interests of extreme uniformitarianism to discredit the abrupt change from palæocosmic to neocosmic men. It has been supposed that the latter replaced the former as conquerors – a most unlikely theory, when their relative powers are considered. It has been conjectured that as the cold decreased the old races of men followed the reindeer to the north and became Arctic peoples. But why did they not rather attack the new animals, which in that case must have come in from the south? It has even been supposed that the Esquimaux may be their descendants; but they are quite different in physical characters, and have no nearer resemblance

in their arts than other rude peoples. In opposition to all this we have not only the remarkable change in the races of men and in their animal associates, but when we know that the whole geographical features of our continents have changed since the palanthropic age, and that not only are our continents reduced in size since the continental post-glacial period, but that there is evidence of re-elevation as well as subsidence, and this within a short period—say eight thousand years less the historic period on the one hand and the early palanthropic on the other—it seems impossible to doubt the greatness and suddenness of the physical break that divides the anthropic age into two distinct portions. All this may be held to be certainly known as geological fact, and it would be folly to overlook it in any discussions as to primitive man, or in any comparisons of the evidence afforded by his remains with that of early human history or tradition.

But if man was a witness of and sufferer in this great catastrophe, and if any men survived it, did they preserve no tradition or memory of such a stupendous event? We may imagine this to be possible. The survivors may have belonged to the rudest and most isolated of the races of men, and may have had no means of knowing the extent of the disaster or of preserving its memory. On the other hand, they may have attained to a sufficient degree of culture to have had some means of perpetuating the memory of great events. If so, we may imagine that

the great diluvial cataclysm which separates the human or anthropic period into two parts may have left an indelible mark in the history or tradition of mankind. We shall inquire into this in the sequel, but must first consider what geological monuments remain of the early neanthropic age in Europe.[1]

In the meantime I may remark that, if we take the Canstadt people to represent the ruder tribes of the antediluvian Cainites, the feebler folk of Truchère to represent the Sethites, and the giant race of Cro-magnon and Mentone as the equivalent of the 'mighty men' or Nephelim of Genesis who arose from the mixture of the two original stocks, we shall have a somewhat exact parallel between the men of the caves and gravels and those we have so long been familiar with in the Book of Genesis.

[1] A valuable paper by Dawkins 'On the relation of the Palæolithic to the Neolithic Period,' reaches me when correcting the proof of this volume. (Reprint from *Journal of Anthropological Society*, February 1894.)

CHAPTER VII

THE EARLY NEANTHROPIC AGE

THERE has been much confusion among anthropologists respecting the distinction of this from the preceding age. The Cro-magnon race has been classed as neanthropic, and has been confounded with a very dissimilar people which succeeded it after an interval of some duration. The gap between the disappearance of the earlier race and the arrival of the newer has thus been overlooked, and no account has been taken of the great intervening faunal and geographical changes. This has arisen from neglecting or being unable to appreciate the geological part of the evidence; and the somewhat lamentable result has been that it is difficult for the ordinary reader to arrive at any certainty, in the midst of conflicting statements all based on imperfect data. In these circumstances it will be well to begin this chapter with some examples of the relations of these different races.

At Grenelle, near Paris, on the river Seine, there is a succession of old inundation beds of that river, ex-

tending from the oldest part of the anthropic to modern times, and furnishing what may be regarded as a chronological series for Northern France, as many human remains have been from time to time deposited on this old eddy of the Seine and buried under newer accumulations. Belgrand has shown that in the lowest gravels of this deposit the long-headed Canstadt man is alone found. Immediately above this occur remains of the Cro-magnon type, and these are associated with and overlain by beds holding large stones or erratic blocks, a monument perhaps of the physical disturbances closing the palanthropic age. Above these the next remains are those of a race of men of smaller stature and with less elongated heads, which we shall find belong to the neanthropic age. Here, as Quatrefages points out, we have a distinct stratigraphical succession, which accords with that in other localities.

If we now turn to England we may select from other examples the Cresswell caves, so carefully explored by Dawkins and Mello, and in which we have well-ascertained evidence from fossils as well as from superposition. Without going into the details as to the several chambers and passages in these caverns, we find as the result of the whole the following succession in ascending order :

1. White calcareous sand, a deposit from water, but with no animal remains.

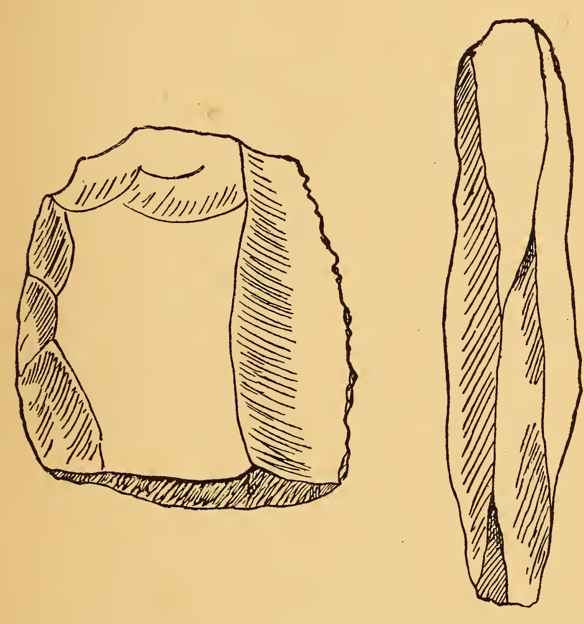
2. Stiff red clay with blocks of limestone, and in places underlaid by a ferruginous sand. These beds,

of which the red clay is the principal, contain bones of rhinoceros leptorhinus, hippopotamus, bison, bear, hyena and fox, but no human remains. Dawkins, however, shows that in other caves farther south some rude flint implements show that man had already appeared in England, though he may not have made his way as far north as Yorkshire.

3. Above this lies a stratum of red sandy cave earth, in which occur the bones of the mammoth and the woolly rhinoceros, the horse, the bison, the bear, and the hyena, but the leptorhine rhinoceros is gone The bones are gnawed by hyenas, and there are rude quartzite implements. Over this, and representing the later part of the palanthropic age, corresponding to some of the French, Belgian, and Lebanon caves, are an upper cave earth and breccia, rich in 'palæolithic' flint implements and bones of the animals of the mammoth age.

4. Above this, in the surface soil and disturbed portions of the underlying beds, are remains of the neanthropic period, including twelve species of modern animals, but with no trace of the great extinct quadrupeds. Connected with these were human skulls of the same type found in the ancient burial barrows of England, and belonging to races still extant. The Cresswell caves give no bones of palæocosmic men, but they very well show the succession of the early period of mild climate, the later severe climate, the extinction of the old animals contemporary with the earliest men, and the final

succession of modern men and animals to the now insular Britain, which, in the times represented by the beds one, two, and three above mentioned, was a part of the mainland of Europe.



FLINT FLAKES OF TWO TYPES FROM PALANTHROPIC AND NEANTHROPIC CAVES IN THE LEBANON

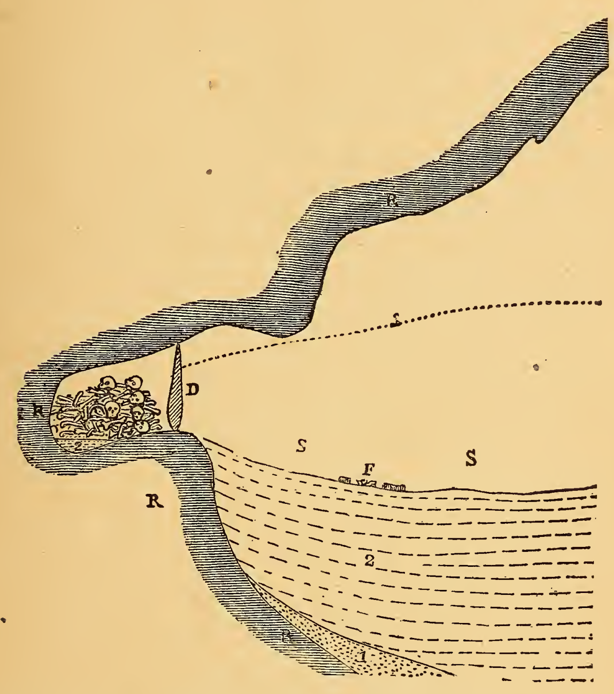
But perhaps the most interesting views of the succession of early men and the gap between the palanthropic and neanthropic periods are presented by the Belgian caves explored by Schmerling and Dupont. The latter has excavated more than sixty

caverns, and has carefully noted the mode of occurrence of their contents, collecting at the same time a vast number of bones and implements, now admirably arranged in the museum of Brussels. In Belgium the earlier anthropic period has been characterised as that of the mammoth. The beginning of the neanthropic is still a reindeer age, though that animal was apparently becoming rare. It existed, as we know, in Central Europe till the time of Cæsar.

The caves of Furfooz, and especially that of Frontal, are among the most instructive. Dupont has found that in many caves the older remains of the mammoth age are contained in or covered by a diluvial or inundation mud,[1] which seems to be the closing deposit of this age. Now in the Frontal cave this mud remained undisturbed and extended out into a platform in front of the cave. The cave itself had been used as a place of burial, and as many as sixteen skeletons were found in it, with flint implements, perforated shells, flat pieces of sandstone with sketches of figures scratched on them, and an earthen vase. All these lay above the original palanthropic mud floor, and belonged to new tribes which probably knew nothing of their predecessors, whose bones were covered by the inundation mud below. On the platform in front of the cave was a hearth with the ashes of funeral feasts, and around this were found a multitude of bones of animals, of the modern species of the country. The people

[1] Sometimes with angular stones—*argile à blocaux*.

who used this cave as a sepulchre had evidently arrived in Belgium after the palæocosmic men and



RESTORATION OF THE SEPULCHRAL CAVE OF FRONTAL, BELGIUM
(after Dupont)

1.and 2. Gravel and clay of mammoth age. 3. Surface of modern accumulation of angular stones and clay. (D) Slab closing the sepulchre. (S) Platform for funeral feasts. (F) Hearth. (R) Rock forming the walls of the cavern.

the mammoth were not only extinct, but their remains were buried in muddy deposits; though the reindeer

and even the wild horse still existed, and the time was long before the dawn of any authentic history in that part of the world. These men have somewhat shorter heads than the old Cro-magnon race, and they are of smaller stature, and with finer and more delicate features. In these respects they resemble the men of the dolmens and long barrows of France and England, and the existing Auvergnats and Basques, and also the Lapps of the far north. Dupont observes that their materials for implements and ornaments came almost entirely from regions to the southward, and hence he infers commerce with tribes in that direction and the existence of enemies in the north. I should rather infer that the men of Frontal had immigrated into Belgium from the south, and that they were a small and poor outlying tribe of a greater people living south of them. Dupont also remarks on their evident care of the dead, a characteristic of the early neocosmic men, their belief in a future life, and the absence of warlike weapons, whence he infers that they were a mild and pacific race—a conclusion which makes against the idea entertained by some, that they may have displaced the formidable palæocosmic men by conquest.

Similar illustrations are afforded by the caves and rock-shelters of France, Switzerland, and Syria, and have convinced many of the ablest archæologists of the existence of a decided break between the palanthropic and neanthropic ages. In such a case also it is to be observed that a few decided, positive facts

are of more value than any number of examples in which, from local circumstances, the succession may be obscure or uncertain.

The above examples relate to the men of the older neanthropic age, the men of the so-called neolithic or polished stone age of archæologists. These men can be shown to be identical with the oldest populations of postdiluvian Europe, peoples whose descendants exist to-day in many parts of Western Europe, though they have been more or less displaced or mixed with later intrusive races. These people have gone on without any physical cataclysm, or change of fauna, or geographical or climatal changes of any magnitude, into the ages of bronze and iron and of the modern civilisation. Thus, while the palæocosmic men passed away abruptly and have left no certain successors, those who succeeded them pass on without a break into the existing populations of the world.

We must, however, here guard ourselves from a misconception which has apparently unconsciously deceived many writers on this subject. It by no means follows from the facts insisted on above that there are no direct links of connection between palæocosmic and neocosmic men. The ancestors of the latter must have existed through the palanthropic period, and wherever they were living they may have had the same characters which distinguish them at a later time, and which persist to this day. There would therefore be nothing contradictory to our

general view in finding that the small, fine-featured men who succeeded the giants of the olden time were in some more genial parts of the world extant from the first. Nay, it may even appear that they were similar to the Truchère race, and that still more primitive people whose bones are yet unknown, and who inhabited Europe in the early mild period preceding the mammoth age. Neither is there anything anomalous in the occasional reappearance of characters similar to those even of the Canstadt race at the present time, not because any modern men are direct descendants of this race, but because under certain conditions these characters tend to be reproduced. Let us put the case conjecturally as follows:

The original men who peopled the northern continents after the first glacial period were of small stature, agile, and well formed, with mild and pleasing countenance and heads of the medium (mesitocephalic) type. They were dwellers in a warm climate and subsisted on fruits. As population increased and men became hunters and fishermen, and wandered widely over the world, a large-boned, coarse-featured, and savage type of man arose, such as we find in the older caves and gravels, and weapons of kinds not needed in primitive times were invented. In this state of affairs, when the coarser and stronger races had made themselves masters of the world, and had perhaps partially intermixed with the older and more peaceful peoples, a great diluvial catastrophe occurred, which swept away the greater

part of men. The survivors were of the old and unmodified stock, and it was they who repeopled the new world, finding possibly here and there some survivors of the former population, or themselves locally relapsing into a similar state. In this case all the seeming paradoxes and contradictions which have perplexed archæologists would be easily explained. We might even find occasional captives of the primitive small race among the interments of the old giants, and we might find new races of superior physical power arising in the new world and again intruding on the feebler race.

In closing our notice of this period we may proceed to connect it with actual history in the British Islands. When the Romans invaded Britain they found in it two races of men physically very distinct, one of them the aborigines, who had made their way to the island as its first population after the close of the mammoth age, the others apparently a later intrusion. They are known to English antiquaries from their modes of burial as the men of the long and the round barrows or funeral mounds. The first of these are beyond doubt the kinsmen of our little men of the Trou de Frontal, in Belgium. They are thus described by Greenwell and Taylor[1]:

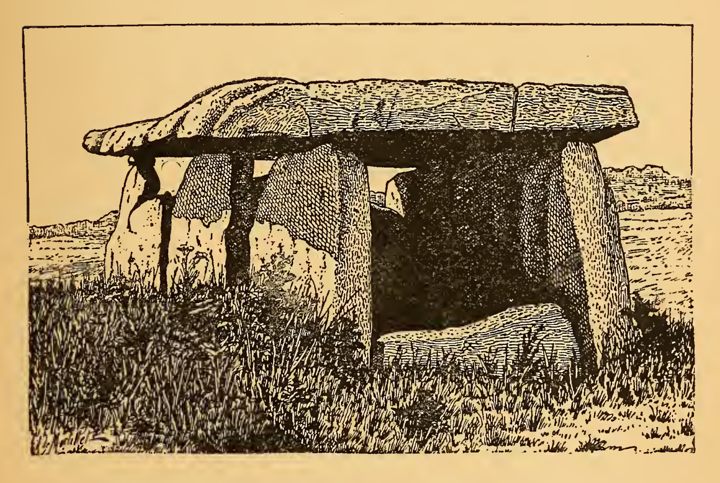
They were of feeble build, short stature, dark complexion, and somewhat long skull. They buried their dead in long barrows or mounds with interior chambers and passages; some of these are as much as

[1] Greenwell, *British Barrows*; Taylor, *Orgin of the Aryans.*

400 feet in length, and resemble artificial caves; and there can be no doubt that, as in Belgium, they buried their dead in caves when these were accessible; and the laborious construction of the long barrows when caves failed is an indication of the great importance they attached to the secure and decent sepulture of the dead. No trace of metal is found in their barrows, and but little pottery, but it is believed that they had at a very early time domesticated sheep and cattle and practised agriculture. These people are now identified with the people of the south and west of England, called by the Romans Silures. They were the builders of the cromlechs, dolmens, and other megalithic structures so common in various parts of the old continent. Their type survives to this day in the small dark people of parts of Wales and the south and west of Ireland, and in parts of the Hebrides. Their physical characters connect them with the primitive populations of the hills of Central France, with the Basques of the Pyrenees, the Corsicans, the Berbers of Africa, and the Guanches of the Canary Islands, and the term Iberian has been applied to the whole group. Their language was originally not Aryan, but Turanian. They represent not merely a new race still surviving, but a distinct advance in practical civilisation over that of the peoples of the palanthropic age, in Europe at least.

At the time of the Roman conquest this primitive race had been replaced in the east of England and south of Scotland by a wholly different people, sup-

posed to be identical with the Celtæ of the Romans. They were tall, muscular, with broader and shorter heads, fair complexion, and light-coloured hair. They buried their dead in round barrows or mounds, and seem at a very early period to have possessed bronze, and so to have introduced what has been termed the bronze age into Britain. At the time of the Roman invasion, however, they already possessed iron weapons. These people were Aryan in speech, allied to the Gauls and Belgæ, and the ancestors of the so-called Celtic populations of the British Islands.



CROMLECH AT FONTANACCIA, CORSICA (after De Mortillet)

CHAPTER VIII

THE PALANTHROPIC AGE IN THE LIGHT OF HISTORY

THE time was when the earlier books of the Hebrew Scriptures stood almost alone in their notices of the creation and antediluvian times, and when critics could quietly take for granted that they were altogether mythical. This state of things has now passed away from the minds of the better informed, and it may be profitable before proceeding farther to glance for a moment at some of the recent corroborations, if they may be so called, of the Bible history from altogether unexpected quarters.

In the first place, there can now be no doubt that the order of creation, as revealed to the author of the first chapter of Genesis, corresponds with the results of astronomical and geological research in a manner which cannot be accidental.[1] This old document thus stands in the position of a prophecy which has been fulfilled in its details. Besides this, the dis-

[1] For evidence of this I may be permitted to refer to my work, *The Origin of the World.*

covery of the similar though not identical Chaldean creation tablets throws a remarkable and interesting side-light on the whole question. The Chaldean tablets are unquestionably very ancient, and borrowed from still older documents from which they are alleged to have been copied. But they and the Genesis narrative are independent of each other. Neither can have been copied from the other. Thus there must have been a still more ancient common source of the narrative, and, as I have elsewhere urged,[1] the greater simplicity and monotheistic character of the Hebrew document entitle it to the palm of the higher antiquity.

With reference to the antediluvian age and the Deluge, while the Bible is here only in accord with almost universal tradition, and this in reference to an event which if it occurred at all must have fixed itself in the memory of the survivors, it is in remarkable accordance with very ancient Chaldean writings commemorative of the same event. Some principal points of this accordance are the following. The Chaldean account implies that the anger of the gods, or some of them, against an evil race of men was the cause of the catastrophe. It gives it a universal character, so far as the sphere of observation extended. It represents the survivors as saved in a ship or ark. It represents Hasisadra, its Noah, as sending out birds to ascertain the subsidence of the waters. In

[1] *Modern Science in Bible Lands.*

all these points and many others the Chaldean account agrees with the Biblical in representing antediluvian men, or some of them, as civilised, possessing domestic animals, and competent to construct large ships.

When we leave the Deluge and come to the post-diluvian or neanthropic period, similar coincidences occur. The foundation of a primitive Cushite or Akkadian kingdom in the Euphratean valley, the dispersion of men according to their families and their languages, the early kingdoms contemporary with Abraham, mentioned in the narrative of his campaign to recover the captives taken from the cities of the plain, the extremely early use of the arrow-headed characters in Asia, of the hieroglyphic writing in Egypt, and of a proto-Phœnician or early Hebrew alphabet among the Mineans of ancient Arabia, tend at once to vindicate the Bible history, and to show how at a very early period this history may have been rendered permanent in written documents. On all these grounds scientific archæologists are beginning to attach more value than formerly to the Hebrew annals, and to recognise them as true historical accounts of the times to which they relate.

It may seem rash to make such a statement at a time when it is well known that many divines of repute avow themselves as believers in the theory that the earlier Biblical books are of comparatively late composition. But Science will have her way in a matter of this kind, whatever literature or criticism

may say, and she is beginning strongly to lift her voice against the destructive criticism of the Pentateuch. In a recent article, Professor Sayce, one of the best-informed experts in these subjects, uses the following language :

'Naturally, the "higher criticism" is disinclined to see its assumptions swept away along with the conclusions which are based upon them, and to sit humbly at the feet of the newer science. At first, the results of Egyptian or Assyrian research were ignored ; then they were reluctantly admitted, so far as they did not clash with the preconceived opinions of the "higher" critics. It was urged, unfortunately with too much justice, that the decipherers were not, as a rule, trained critics, and that in the enthusiasm of research they often announced discoveries which proved to be false or only partially correct. But it must be remembered, on the other side, that this charge applies with equal force to all progressive studies, not excluding the "higher criticism" itself.

'The time is now come for confronting the conclusions of the "higher criticism," so far as it applies to the books of the Old Testament, with the ascertained results of modern Oriental research. The amount of certain knowledge now possessed by the Egyptologist and Assyriologist would be surprising to those who are not specialists in these branches of study, while the discovery of the Tel-el-Amarna tablets has poured a flood of light upon the ancient world, which is at once startling and revolutionary. As in the case of

Greek history, so too in that of Israelitish history, the period of critical demolition is at an end, and it is time for the archæologist to reconstruct the fallen edifice.

'But the very word "reconstruct" implies that what is built again will not be exactly that which existed before. It implies that the work of the "higher criticism" has not been in vain; on the contrary, the work it has performed has been a very needful and important one, and in its own sphere has helped us to the discovery of the truth. Egyptian or Assyrian research has not corroborated every historical statement which we find in the Old Testament, any more than classical archæology has corroborated every statement which we find in the Greek writers; what it has done has been to show that the extreme scepticism of modern criticism is not justified, that the materials on which the history of Israel has been based may, and probably do, go back to an early date, and that much which the "higher" critics have declared to be mythical and impossible was really possible and true.'

In point of fact a much stronger position might be held in favour of Genesis, and we shall find in comparing it with the monuments of the palanthropic and early neanthropic ages that its statements vindicate themselves as derived from original contemporary documents, which were under no obligations to the literature or philosophy of those later times, to which they have been relegated by some of the critics.

Let us inquire a little more in detail into the general features of these early historic notices.

For the purposes of this inquiry we may content ourselves with the consideration of the ancient Hebrew documents incorporated in the Book of Genesis, and the remains which have been preserved of the old Chaldean literature. Both of these represent an antediluvian period of long duration.[1] Both refer the primitive seats of population to the Euphratean region of Western Asia. Both terminate the antediluvian age with a great diluvial catastrophe. These are sufficient points of general agreement to make it probable that both originated in one fundamental history, or at least were based on attempts to describe the same events. Otherwise there are great differences. The Chaldean accounts have a prolix iteration, which makes it probable that they were prepared for popular and liturgic use, and may not fairly represent the original documents in possession of the priestly class. They also naturally introduce all the *personnel* of the Chaldean pantheon, and as this must have been a thing of gradual growth it gives them an air of recency, though we know that they are very old. The Hebrew version, on the other hand, is monotheistic, and has an aspect of severe simplicity in striking contrast to the florid and popular Chaldean version.

[1] Hommel has proved (*Journal of the Society of Biblical Archæology*, 1893), what has always been suspected, that the ten patriarchs of Berosus are the same with those of the Sethite line in Genesis.

We may first notice what history can tell of the palanthropic age, supposing this to be the same with that historically known as antediluvian. The account of creation in the first chapter of Genesis is altogether general, and has no local colouring. It evidently refers to the whole history of the making of the earth. The second chapter, on the other hand, begins at verse 4 the special history of man, and opens with a picture which is not, as some have rashly supposed, a repetition of the previous general account of creation, and still less contradictory to it, but a statement that immediately before the introduction of man the earth had been in a desolate and comparatively untenanted state, that state to which we know it had been reduced by the glacial cold and submergence.

Thus the two accounts of the creation of man, that in which he appears in his chronological position in the general development, and that in which he takes a first place, as introductory to his special history, are not contradictory, but complementary to each other; and the latter refers wholly to man and the creatures contemporary with him in the palanthropic age. It is in accordance with this, and no doubt intended by the editor to mark this distinction, that the name Elohim is used in the general narrative, and Jehovah Elohim in the special one. The failure of so many critics to notice this distinction, which must have been so plain to the primitive historian himself, is a marked illustration of the

blindness of certain nineteenth-century savants, so full of their own special knowledge, yet so careless of science and common sense.

It would even seem that this distinction appeared in the Chaldean Genesis as well; for fragments of what has been called a second Chaldean Genesis have been found which seem to correspond with the statements of the second chapter of Genesis.

The following is an extract from this second Chaldean or Akkadian Genesis as translated by Pinches:[1]

1 The glorious house, the house of the gods, in a glorious place had not been made;

2 A plant had not been brought forth, a tree had not been created;

3 A brick had not been laid, a beam had not been shaped;

4 A house had not been built, a city had not been constructed;

5 A city had not been made, a foundation had not been made glorious;

6 Niffer had not been built, Ê-kura had not been constructed;

7 Erech had not been built, Ê-ana had not been constructed;

8 The Abyss had not been made, Ê-ridu had not been constructed;

9 (As for) the glorious house, the house of the gods, its seat had not been made—

10 The whole of the lands were sea.

[1] *Expository Times*, December 1892

This may be supposed to correspond with the Hebrew verses following :

> And no plant of the field was yet in the earth.
> And no herb of the field had yet sprung up.
> For Jahveh Elohim had not caused it to rain on the earth.
> And there was not a man to till (irrigate) the ground.
> And there went up a vapour from the earth, and watered the surface of the ground.

This is the Hebrew idea of the condition of the great Mesopotamian plain after the pleistocene submergence, and before the appearance of man. The Chaldean version refers to the same region, but is more elaborate and artificial, and brings in the historic cities of a later time. This difference alone would induce us to suppose that the Hebrew record may be a better guide for our present comparison.

The Hebrew writer in the first place gives us to understand that a period of comparative desolation preceded the appearance of man, a great winter of destruction preparatory to a returning spring. He then proceeds to localise primeval man by placing him in Eden, the Idinu of the Chaldean accounts, which we also recognise by the geographical indications of the Euphrates and Tigris as its rivers, with two companion streams which can scarcely be other than the Karun and the Kerkhat. Thus the Bible and the Chaldean account agree in their locality for the advent of man, for Idinu was the ancient name of the plain of Babylonia. It has been objected to this

locality that much of this region is low and swampy, and has only recently become land by the encroachment of the rivers on the head of the Persian Gulf. But if our Biblical authority really refers to palanthropic man, we must bear in mind that in the post-glacial period the continents were higher than now, and the Babylonian plain must have been a dry and elevated district, in all probability forest-clad. We must also bear in mind that Eden was a region of country, and that the 'garden' or selected spot 'eastward in Eden' may have been some rich wooded island surrounded by the river streams, and producing all fruits pleasant to the taste and good for food. In any case the modern objections to the site are based on entire ignorance of its geological history, and only serve to show how much better informed the ancient writer was as to antediluvian geography than his modern critics.[1]

It is scarcely necessary to say that this Biblical environment of primitive man corresponds with the requirements of the case. In a genial climate and sheltered position, and supplied with abundance of food, the first men would have the conditions necessary for comfortable existence and for multiplying in numbers.

We have also in the description of one of the rivers of Eden a hint as to a few of the wants of early man beyond mere food and shelter. We are

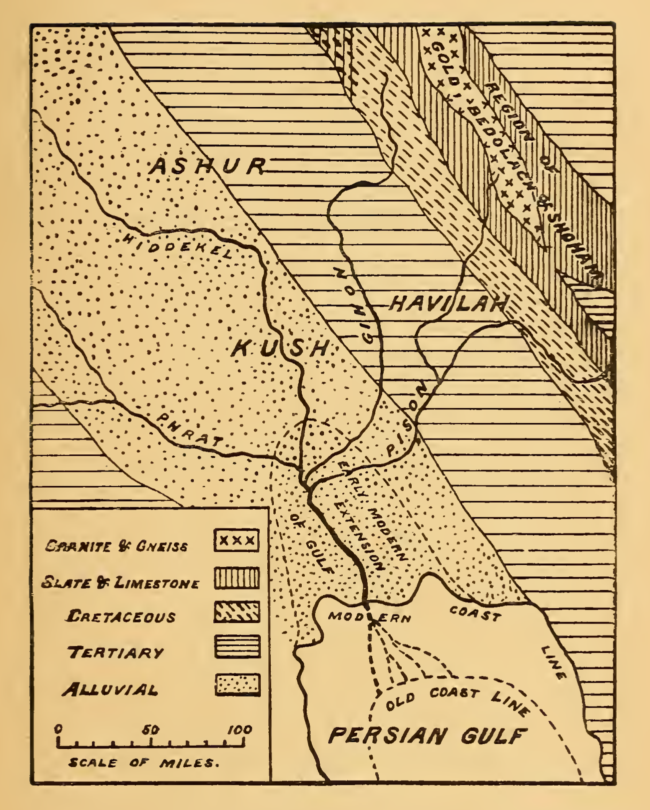
[1] See, for full discussion of this, *Modern Science in Bible Lands*, by the author.

told that the district traversed by this river produced gold, bedolach, and the shoham stone. I have elsewhere shown that this river must be the Karun, draining the Luristan mountains, and that the productions indicated must have been 'native gold and silver, wampum beads, and jade and similar stones suitable for implements.'[1] Thus we have here a picture which may well represent the origin and early condition of our palæocosmic men. But the parallel does not end here.

According to the history, man falls, and is expelled from Eden, is clothed with skins, and becomes an eater of animal food. Next we find murderous violence, and a consequent separation of the primitive people into two tribes, one of which migrates to a distance from the other and adopts different modes of life. Finally, we have a mixture of the two races, leading to a powerful and terrible race of half-breeds, or metis, who filled the earth with violence.[2]

In one point only have we reason to doubt whether this old history fairly represents the palanthropic age. It notes the invention of musical instruments, the use of metals, the domestication of animals as already existing in the antediluvian period. Of these we have little or no archæological evidence. The only musical instrument of this period known is a whistle made of one of the bones of a deer's foot, and capable of sounding a tetrachord

[1] *Modern Science in Bible Lands.*
[2] Genesis vi. 1-6.



MAP SHOWING THE GEOGRAPHICAL AND GEOLOGICAL RELATIONS OF THE SITE OF EDEN AS DESCRIBED IN GENESIS

or four notes, and we have no certain evidence of metals or domesticated animals. We must bear in mind that there may have been more civilised races than those of the Cro-magnon type, and that the latter evince an artistic skill which if it had any scope for development may have led to great results. The native metals must have been known to man from the first, though they must have been rare or only locally common; and many semi-barbarous nations of later times show us that it is only a short step from the knowledge of native metals to the art of metallurgy, in so far as it consists in treating those ores that in weight and metallic lustre most resemble the metals themselves. It is also deserving of notice that no other hypothesis than that of antediluvian civilisation can account for the fact that in the dawn of postdiluvian history we find the dwellers by the Euphrates and the Nile already practising so many of the arts of civilised life. In connection with this we may place the early dawn of literature. Without insisting on the documents which the Chaldean Noah, Hasisadra, is said to have hid at Sippara before the Deluge, we have the known fact that in the earliest dawn of postdiluvian history the art of writing was known in Chaldea and in Egypt. This at once testifies to antediluvian culture, and shows that the means existed to record important events.

There is, perhaps, no one of the vagaries now current under the much abused name of evolution more opposed to facts, whether physical or historical

than the notion that, because 3000 years B.C. we have evidence of an advanced civilisation in Chaldea and in Egypt, this must have been preceded by a long and uninterrupted progress through many thousands of years from a savage state. Two facts alone are sufficient to show the folly of such a supposition. First, the intervention of that great physical catastrophe which separates the palanthropic and neanthropic periods; and secondly, the testimony of history in favour of the arts of civilisation originating with great inventors, and not by any slow and gradual process of evolution. According to all history, sacred and profane, many such inventors existed even in the palanthropic and early neanthropic ages, and transmitted their arts in an advanced state to later times. The Book of Genesis testifies to this in its notices of Tubal Cain and Jubal; and the monuments of Chaldea and Egypt show that metallurgy, sculpture, and architecture were as far advanced at the very dawn of history as in any later period. It is true that Genesis represents its early inventors as mere men, albeit 'sons of God,' while they often appear as gods or demi-gods in the early history of the heathen nations; but the fact remains that then, as now, the rare appearance of God-given inventive genius is the sole cause of the greater advances in art and civilisation. Spontaneous development may produce socialistic trades' unions or Chinese stagnation, but great gifts, whether of prophecy, of song, of scientific insight,

or of inventive power, are the inspiration of the Almighty.

We have in the closing part of the Bible story of the antediluvian age even an intimation of the deterioration of climate and means of subsistence towards the end of the period. Lamech, we are told, named his son Noah—rest or comfort—in the hope that by his means he should be comforted, because of the ground which the Lord had cursed. That curse provoked by the sons of man he may have recognised as fulfilled in the gradual deterioration of the climate toward the close of the palanthropic age. There are here surely some curious coincidences which might be followed farther, did space permit.

We now come to the close of the whole in the Deluge; and as this has been made in our own time the subject of much discussion, and as it contains within itself the whole kernel of the subject, it merits a separate treatment.

CHAPTER IX

THE DELUGE OF NOAH

To the older men of this generation, who have followed the changes of scientific and historical opinion, the story of the Deluge, old though it is, has passed through a variety of phases like the changes of a kaleidoscope, and which may afford an instructive illustration of the modifications of belief in other, and some of them to us more important, matters, whether of history or of religion, which have presented themselves in like varied aspects, and may be variously viewed in the future.

As children we listened with awe and wonder to the story of the wicked antediluvians, and of their terrible fate and the salvation of righteous Noah, and received a deep and abiding impression of the enormity of moral evil and of the just retribution of the Great Ruler of the Universe. A little later, though the idea that all the fossil remains imbedded in the rocks are memorials of the Deluge had passed away from the minds of the better

informed, we read with interest the wonderful revelations of the bone-caves described by Buckland, and felt that the antediluvian age had become a scientific reality. But later still all this seemed to pass away like a dream. Under the guidance of Lyell we learned that even the caves and gravels must be of greater age than the historical Deluge, and that the remains of men and animals contained in them must have belonged to far-off æons, antedating perhaps even the Biblical creation of man, while the historical Deluge, if it ever occurred, must have been an affair so small and local that it had left no traces on the rocks of the earth. At the same time Biblical critics were busy with the narrative itself, showing that it could be decomposed into different documents, that it bore traces of a very recent origin, that it was unhistorical, and to be relegated to the same category with the fairy-tales of our infancy. Again, however, the kaleidoscope turns, and the later researches of geology into the physical and human history of the more recent deposits of the earth's crust, the discoveries of ancient Assyrian or Chaldean records of the Deluge, and the comparison of these with the ancient history of other nations, rehabilitate the old story; and as we study the new facts respecting the so-called palæolithic and neolithic men, the clay tablets recovered from the libraries of Nineveh by George Smith, the calculations of Prestwich and others respecting the recency of the glacial period, and the historical gatherings of Lenormant, we find

ourselves drifting back to the faith of our childhood, or may congratulate ourselves on having adhered to it all along, even when the current of opinion tended strongly to turn us away.

In illustration of the present aspects of the question I make two extracts, one from Lenormant's *Beginnings of History*, another from a recent work of my own.

'We are,' says Lenormant, 'in a position to affirm that the account of the Deluge is a universal tradition in all branches of the human family, with the sole exception of the black race, and a tradition everywhere so exact and so concordant cannot possibly be referred to an imaginary myth. No religious or cosmogonic myth possesses this character of universality. It must necessarily be the reminiscence of an actual and terrible event, which made so powerful an impression upon the imaginations of the first parents of our species that their descendants could never forget it. This cataclysm took place near the primitive cradle of mankind, and previous to the separation of the families from whom the principal races were to descend, for it would be altogether contrary to probability and to the laws of sound criticism to admit that local phenomena exactly similar in character could have been reproduced at so many different points on the globe as would enable one to explain these universal traditions, or that these traditions should always have assumed an dientical form, combined with circumstances which

need not necessarily have suggested themselves to the mind in such a connection.'[1]

On the geological side, the following may be accepted as a summary of facts:[2]

'If the earliest men were those of the river gravels and caves, men of the mammoth age or of the palæolithic or palæocosmic period, we can form some definite ideas as to their possible antiquity. They colonised the continents immediately after the elevation of the land from the great subsidence which closed the pleistocene or glacial period, or in what has been called the "continental" period of the post-glacial age, because the new lands then raised out of the sea exceeded in extent those which we now have. We have some measures of the date of this great continental elevation. Many years ago, Sir Charles Lyell used the recession of the Falls of Niagara as a chronometer, estimating their cutting power as equal to one foot per annum. He calculated the beginning of the process, which dates from the post-glacial elevation, to be about thirty thousand years ago. More recent surveys have shown that the rate is three times as great as that estimated by Lyell, and also that a considerable part of the gorge was merely cleaned out by the river since the pleistocene age. In this way the age of the Niagara gorge becomes reduced to perhaps seven or eight thousand years. Other indications of similar bearing

[1] *Les Origines de l'Histoire.* Brown's translation.

[2] *Modern Science in Bible Lands*, 1888, pp. 244, 245, 251, 252.

are found both in Europe and America, and lead to the belief that it is physically impossible that man could have colonised the northern hemisphere at an earlier date. These facts render necessary an entire revision of the calculations based on the growth of stalagmite in caves, and other uncertain data which have been held to indicate a greater lapse of time.

'If we identify the antediluvians of Genesis with the oldest men known to geological and archæological science, the parallelism is somewhat marked in physical characteristics and habits of life, and also in their apparently sudden and tragical disappearance from Europe and Western Asia, along with several of the large mammalia which were their contemporaries. If the Deluge is to be accepted as historical, and if a similar great break interrupts the geological history of man, separating extinct races from those which still survive, why may we not correlate the two? If the Deluge was misused in the early history of geology, by employing it to account for changes which took place long before the advent of man, this should not cause us to neglect its legitimate uses, with reference to the early human period. It is evident that if this correlation be accepted as probable, it must modify many views now held as to the antiquity of man. In that case the modern gravels and silts, spread over the plateaus between the river valleys, will be accounted for, not by any greater overflow of the existing streams, but by the abnormal action of currents of water diluvial in

their character. Further, since the historical Deluge must have been of very limited duration, the physical changes separating the deposits containing the remains of palæocosmic men from those of later date would in like manner be accounted for, not by the slow processes imagined by extreme uniformitarians, but by causes of a more abrupt and cataclysmic character.'[1]

We may proceed to inquire as to whether the position which we have now reached is likely to be permanent, or may represent merely one shifting phase of opinion. For this purpose we may formulate these conclusions in a few general statements, merely referring to the evidence on which they are based, as any complete discussion of this would necessarily be impossible within the limits of this work. We may first summarise the present position of the matter as indicated by historical and scientific research, altogether independently of the Bible.[2]

1. The recent discovery of the Chaldean deluge tablets has again directed attention to the statements of Berosus respecting the Babylonian tradition of a great flood, and these statements are found to be borne out in the main by the contents of the tablets. There is thus a twofold testimony as to the occurrence of a deluge in that Babylonian plain which the Old

[1] See also Howorth, *The Mammoth and the Flood*, and papers by Professor Prestwich in *Journal Geol. Society* and *Trans. Royal Society* and by Andrews, Winchell, and others in America.

[2] See articles by the author in *The Contemporary Review*, December 1889, and in *The Magazine of Christian Literature*, October 1890

Testament history represents as the earliest seat of antediluvian man. As Lenormant has well shown, the tradition exists in the ancient literature of India, Persia, Phœnicia, Phrygia, and Greece, and can be recognised in the traditions of Northern and Western Europe and of America, while the Egyptians had a similar account of the destruction of men, but apparently not by water, though their idea of a submerged continent of Atlantis probably had reference to the antediluvian world. Thus we find this story widely spread over the earth, and possessed by members of all the leading divisions of mankind. This does not necessarily prove the universality of the Deluge, though every distinct people naturally refers it to its own country. It shows, however, the existence of some very early common source of the tradition, and the variations are not more than were to have been expected in the different channels of transmission.

2. Parallel with this historical evidence lies the result of geological and archæological research, which has revealed to us the remains and works of prehistoric men, racially distinct from those of modern times, and who inhabited the earth at a period when its animal population was to a great extent distinct from that at present existing, and when its physical condition was also in many respects different. Thus in Europe and Asia, and to some extent also in America, we have evidence that the present races of men were preceded by others which have passed away, and this at the same

time with many important species of land animals, once the contemporaries of man, but now known only as fossils. These ancient men are those called by geologists later pleistocene, or post-glacial, or the men of the cave and gravel deposits, or of the age of the mammoth, and who have been designated by archæologists palæolithic men, or, more properly, palæocosmic men, since the character of their stone implements is only one not very important feature of their history, and implements of the palæolithic type have been used in all periods, and indeed are still used in some places.

3. The prevalence among geologists of an exaggerated and unreasonable uniformitarianism, which refused to allow sufficient prominence to sudden cataclysms arising from the slow accumulation of natural forces, and which was a natural reaction from the convulsive geology of an earlier period, has caused the idea to be generally entertained that the age of palæocosmic men was of vast duration, and passed only by slow gradations and a gradual transition into the new conditions of the modern period. This view long was, and still is, an obstacle to any rational correlation of the geological and traditional history of man. Recently, however, new views have been forced on geologists, and have led many of the most sagacious observers and reasoners to see that the palanthropic period is much nearer to us than we had imagined. The arguments for this I have referred to in previous pages, and need not reiterate

them here. A few leading points may, however, be noted. One of these is the small amount of physical or organic change which has occurred since the close of the palanthropic period. Another is the more rapid rate of erosion and deposition by rivers in the modern period than had previously been supposed. Another is the striking fact that a large number of mammals, like the mammoth and woolly rhinoceros, seem to have perished simultaneously with the palæocosmic men, and this by some sudden catastrophe.[1] It has also been shown by Pictet and Dawkins that all the extant mammals of Europe already existed in the post-glacial age, but along with many others now altogether or locally extinct. Thus there seems to have been the removal over the whole northern hemisphere of a number of the largest mammals, while a selected number survived and no additions were made. Again, while at one time it was supposed that the remains of palæocosmic man and his contemporaries were confined to caverns and river alluvia, it is now known that they occur also on high plateaus and water-sheds, in beds of gravel and silt which must have been deposited there under conditions of submergence and somewhat active current drift, perhaps in some cases aided by floating ice.[2] Lastly, while, as must naturally be the case, in some places the remains of ancient and more

[1] Howorth, *The Mammoth and the Flood.*

[2] Prestwich on deposits at Ightham, Kent, *Journal Geological Society*, May 1889.

modern men are mixed, or seem to pass into each other, in others, as in the Swiss, Belgian and Lebanon caves and in the superficial deposits, there is a distinct separation, implying an interval accompanied by physical change between the time of the earlier and later men.

Such considerations as these, the force of which is most strongly felt by those best acquainted with the methods of investigation employed by geologists and archæologists, are forcing us to conclude: (1) That there are indicated in the latest geological formations two distinct human periods, an earlier and a later, characterised by differences of faunæ and of physical conditions, as well as by distinct races of men. (2) That these two periods are separated by a somewhat rapid physical change of the nature of submergence, or by a series of changes locally sudden and generally not long-continued. (3) That it is not improbable that this greatest of all revolutions in human affairs may be the same that has so impressed itself on the memory of the survivors as to form the basis of all the traditions and historical accounts of the Deluge.

This being the state of the case, it becomes expedient to review our ideas of the ancient Hebrew records, from which our early, and perhaps crude, impressions of this event were derived, and to ascertain how much of our notions of the Deluge of Genesis may be fairly deduced from the record itself, and how much may be due to more or less

correct interpretations, or to our own fancy. In connection with this we may also be able to obtain some guidance as to the value to be attached to the Hebrew document as a veritable and primitive record of the great catastrophe.

The key to the understanding of the early human history of Genesis lies in the story of the fall of man, and its sequel in the murder of Abel by his brother Cain, the beginning of that reign of violence which endures even to this day. From this arose the first division of the human race into hostile clans or tribes, the races of Cain and Seth, on which hinges the history, characteristics and fate of antediluvian man; and, as we shall see in the sequel, from this arose profound differences in religious beliefs, which have tinged the theology and superstitions of all subsequent times. Of course, in making this statement I refer to the history given in Genesis, without special reference to its intrinsic truth or credibility, but merely in relation to its interpretation in harmony with its own statements.

It is further evident that this tragic event must have occurred in that Tigro-Euphratean region which was the Biblical site of Eden,[1] and that while the Sethite race presumably occupied the original home of Adam, and adhered to that form of religion which is expressed in the worship of Jahveh, the coming Redeemer and the expected 'Seed of the Woman,' the other race spread itself more widely, probably attained

[1] *Modern Science in Bible Lands*, chap. iv.

to a higher civilisation, in so far as art is concerned, in some of its divisions, and sank to a deeper barbarism in others, while it retained the original worship of God the Creator (Elohim). Hence the Sethite race is designated as the sons of Adam (Beni ha Adam), the true and legitimate children of the first man, and the Cainites as Beni Elohim, or sons of God.[1] The mixture of these races produced the godless, heaven-defying Nephelim, the Titans of the Old Testament, whose wickedness brought on the diluvial catastrophe. These half-breeds of the antediluvian time were in all probability the best developed, physically and perhaps mentally, of the men of their period ; and but for the Deluge they might have become masters of the world.

This question of different races and religions before the Flood is, however, deserving of a little farther elucidation. The names Elohim and Jahveh are used conjointly throughout the Book of Genesis except in its first chapter, and their mode of occurrence cannot be explained merely on the theory of two documents pieced together by an editor. It has a deeper significance than this, and one which indicates a radical diversity between Elohists and Jahvists even in this early period. In the earliest part of the human history, as distinguished from the general record of creation, the two names are united in the

[1] That this is the true meaning of the expressions in Genesis vi. I cannot doubt. See discussion of the subject in the work cited in previous note.

compound Jahveh-Elohim, but immediately after the fall Eve is represented as attributing to, or identifying with, Jahveh alone the birth of her eldest son—'I have produced a man, the Jahveh,' and which may mean that she supposed Cain to be the promised manifestation of God as the Redeemer. Accordingly Cain and Abel are represented as offering sacrifice to Jahveh, and yet it is said in a verse which must be a part of the same document, that it was not till the time of Enos, a grandson of Adam, that men began to invoke the name of Jahveh. It would seem also that this invocation of Jahveh was peculiar to the Sethites, and that the Cainites were still worshippers of Elohim, the God of nature and creation, a fact which perhaps has relation to the so-called physical religion of some ancient peoples. Hence their title of Beni ha Elohim. Thus the division between the Cainite and Sethite races early became accentuated by a sectarian distinction as well. We may imagine that the Cainites, worshipping God as Creator, and ignoring that doctrine of a Redeemer which seemed confined to the rival race of Seth, were the deists of their time, and held a position which might, according to culture and circumstances, degenerate into a polytheistic nature-worship, or harden into an absolute materialism. On the other hand, the Sethites, recognised by the author of Genesis as the orthodox descendants of Adam, and invoking Jahveh, held to the promise of a coming Saviour, and to a deliverance from the effects of the Fall to be achieved by His means.

It is clear that, from the point of view of the author of Genesis, the chosen seed of Seth should have maintained their separation from a wicked world. Their failure to do this involves them in the wrath of Jahveh and renders the destruction of mankind necessary, and in this the whole Godhead under its combined aspects of Elohim and Jahveh takes a part. A similar view has caused the Chaldean narrator to invoke the aid of all the gods in his pantheon to effect the destruction of man.

These considerations farther throw light on the double character of the Deluge narrative in Genesis, which has induced those ingenious scholars who occupy themselves with analysis or disintegration of the Pentateuch to affirm two narratives, one Elohist and one Jahvist.[1] Whatever value may attach to this hypothesis, it is evident that if the history is thus made up of two documents it gains in value, since this would imply that the editor had at his disposal two chronicles embodying the observations of two narrators, possibly of different sects, if these differences were perpetuated in the post-diluvian world; and farther, that he is enabled to affirm that the catastrophe affected both the great races of men. It farther would imply that these early documents were used by the writer to produce his combined narrative almost without change of

[1] See, for a very clear statement of these views, Professor Green in *Hebraica*, January 1889, along with Dr. Harper's *résumé* of the Pentateuchal criticism in the previous number.

diction, so that they remain in their original form of the alleged testimony of eye-witnesses, a peculiarity which attaches also to the Chaldean version, as this purports to be in the form given by Hasisadra, the Chaldean Noah, himself.[1]

Let us now inquire into the physical aspects of the Deluge, as they are said to have presented themselves to the ancient witness or witnesses to whom we owe the Biblical account of the catastrophe, and endeavour to ascertain if they have any agreement with the conditions of the great post-glacial Deluge of geology. Let it be observed here that we are dealing not with prehistoric events but with a written history, supposed by some to have been compiled from two contemporary documents, and corroborated by the testimony of the ancient Chaldean tablets copied by the scribes of Assurbanipal, apparently from different originals, preserved in very ancient Chaldean temples.

The preparation of an ark or ship, and the accommodation therein, not only of Noah and his family, but of a certain number of animals, is a feature in which most Deluge narratives agree. This implies a considerable advance in the arts of construction and navigation, but not more than we

[1] Translation of G. Smith and others. With reference to the preservation of this and the Hebrew narrative in writing, we should bear in mind that writing was an art well known in Chaldea and Egypt immediately after the Deluge, or at least between 2000 and 3000 B.C., and that the Chaldean narrator speaks of documents hidden by Noah at Sippara before the Deluge.

have a right to infer from the perfection of these arts in early postdiluvian times, when it can scarcely be supposed that the new communities of men had fully regained the position of their ancestors before the destruction caused by the great Flood. Lenormant, however, remarks here :

'The Biblical narrative bears the stamp of an inland nation, ignorant of things appertaining to navigation. In Genesis the name of the ark, Têbâh, signifies "chest," and not "vessel"; and there is nothing said about launching the ark on the water ; no mention either of the sea, or of navigation, or any pilot. In the Epopee of Uruk, on the other hand, everything indicates that it was composed among a maritime people ; each circumstance reflects the manners and customs of the dwellers on the shores of the Persian Gulf. Hasisadra goes on board a vessel, distinctly alluded to by its appropriate appellation ; this ship is launched, and makes a trial-trip to test it : all its chinks are calked with bitumen, and it is placed under the charge of a pilot.'

This remark, which I find made by other commentators as well, suggests, it seems to me, somewhat different conclusions The Hebrews when settled, either in Egypt or in Canaan, were near to the sea-coast, and familiar with boats and with the ships of the Phœnicians. If, therefore, they persisted in calling Noah's ark a 'chest,' it must have been from unwillingness to change an old history derived from their Chaldean or Mesopotamian ancestors, or be-

cause they continued to regard the ark as rather a great box than a ship properly so called. On the other hand, it is likely that the particulars in the Chaldean account came from later manipulation of the narrative, after commerce and navigation on the Euphrates and Persian Gulf had become familiar to the Chaldeans. Thus in this as in other respects the Hebrew narrative is the more primitive of the two, and is consistent with the necessity of Divine instructions to Noah, which, if he had been familiar with navigation, would not have been necessary.[1]

As in the Chaldean version, the Biblical history begins with the specification of the ark. On this (Elohist) portion it is only necessary to say that the dimensions of the ark are large and well adapted to stowage rather than to speed, and that within it was strengthened by three decks and by a number of bulkheads, or partitions, separating the rooms or berths into which it was divided. Without, it was protected and rendered tight by coats of resinous or asphaltic varnish (*copher*), and it was built of the lightest and most durable kind of wood (gopher or cypress). Only two openings are mentioned, a hatch or window above, and a port or door in the side. There is no mention of any masts, rigging, or other means of propulsion or steerage. The Chaldean history differs in introducing a steersman,

[1] See also the evidence of an inland position of the writers in the record of creation in Genesis i., as stated in my work cited in previous note.

thus implying the means of propulsion as in an actual ship.

Noah is instructed, in addition to his own family, to provide for animals, two of every kind ; but these very general terms are afterwards limited by the words *uph*, *bemah*, and *remesh*, which define birds, cattle, and small quadrupeds as those specially intended. Noah's ark was not a menagerie, but rather like a cattle-ship, capable perhaps of accommodating as many animals as one of those steamers which now transfer to England the animal produce of Western fields and prairies. The animals portrayed on the ancient monuments of Egypt and Assyria, however, inform us that, in early post-diluvial times, and therefore probably also in the time of Noah, a greater variety of animals were under the control of man than is the case in any one country at present.[1] In the passage referring to the embarkation, only the cattle and fowls are mentioned, but seven pairs are to be taken of the clean species which could be used as food.[2] The embarkation having been completed on the very day when the Deluge commenced, we have next the narrative of the Flood itself. Here it is noteworthy that God

[1] Houghton, *Natural History of the Ancients*, and *Transactions of the Society of Biblical Archæology* ; also representations of tame antelopes, &c., on Egyptian monuments.

[2] This has been considered a later addition ; but the practice of all primitive peoples has sanctioned the distinction of clean and unclean beasts, which is merely defined in the Mosaic law, not instituted for the first time.

(Elohim) makes the arrangements, and Jahveh shuts the voyagers in.

The first note that our witness enters in his 'log' relates to his impressions of the causes of the catastrophe, which was not effected supernaturally, but by natural causes. These are the 'breaking up of the fountains of the great deep' and the 'opening of the windows of heaven.' These expressions must be interpreted in accordance with the use of similar terms in the account of creation in Genesis i., the more so that this statement is a portion regarded by the composite theory as Elohistic. On this principle of interpretation, the great deep is that universal ocean which prevailed before the elevation of the dry land, and the breaking up of its fountains is the removal of that restriction placed upon it when its waters were gathered together into one place. In other words, the meaning is the invasion of the land by the ocean. In like manner, the windows of heaven, the cloudy reservoirs of the atmospheric expanse, or possibly waterspouts, or even volcanic eruptions, and not necessarily identical with the great rain extending for forty days, as stated in the following clause. The Chaldean record adds the phenomena of thunder and tempest, but omits the great deep; an indication that it is an independent account, and by a less informed or less intelligent narrator. It is worthy of note that our narrator has no idea of any river inundation in the case.

At this stage we are brought into the presence of

the question: Is the Deluge represented as a miraculous or a merely natural phenomenon? Yet, from a scientific point of view, this question has not the significance usually attributed to it. True miracles are not, and cannot be, contraventions or violations of God's natural laws. They are merely unusual operations of natural powers under their proper laws, but employed by the Almighty for effecting spiritual ends. Thus, naturally, they are under the laws of the material world, but, spiritually, they belong to a higher sphere. In the present case, according to the narrative in Genesis, the Flood was physically as much a natural phenomenon as the earthquakes at Ischia, or the eruption of Krakatoa. It was a miraculous or spiritual intervention only in so far as it was related to the destruction of an ungodly race, and as it was announced beforehand by a prophet. Had the approaching eruption of Krakatoa been intended as a judgment on the wicked, and had it been revealed to anyone who had taken pains to warn his countrymen and then to provide for his own safety, this would have given to that eruption as much of a miraculous character as the Bible attaches to the Deluge. In the New Testament, where we have more definite information as to miracles, they are usually called 'powers' and 'signs,' less prominence being given to the mere wonder which is implied in the term 'miracle.' Under the aspect of *powers*, they imply that the Creator can do many things beyond our power and comprehension, just as in a lesser way a civilised

man, from his greater knowledge of natural laws and command over natural energies, can do much that is incomprehensible to a savage; and in this direction science teaches us that, given an omnipotent God, the field of miracle is infinite. As *signs*, on the other hand, such displays of power connect themselves with the moral and spiritual world, and become teachers of higher truths and proofs of Divine interference. The true position of miracles as signs is remarkably brought out in that argument of Christ, in which He says, 'If ye believe not My words, believe Me for the works' sake.' It is as if a civilised visitor to some barbarous land, who had been describing to an incredulous audience the wonders of his own country, were to exhibit to them a watch or a microscope, and then to appeal to them that these were things just as mysterious and incredible as those of which he had been speaking.

Returning to the Deluge, we may observe that such an invasion of the great deep is paralleled by many of which geology presents to us the evidence, and that our knowledge of nature enables us to conceive of the possibility of greater miracles of physical change than any on record, such as, for instance, the explosion of the earth itself into an infinity of particles, the final extinction of the solar heat, or the accession to this heat of such additional fierceness as to burn up the attendant planets. All this might take place without any interference with God's laws, but merely by correlations and adjustments of them, as much

within His power as the turning on or stopping of a machine is in the power of a human engineer. Further, such acts of Divine power may be related to moral and spiritual things, just as easily as any outward action resulting from our own will may be determined by moral considerations. The time is past when any rational objection can be made on the part of science to the so-called miracles of the Bible.

To return to the passengers in the ark. This must have been built on high ground, or the progress of the Deluge must have been slow, for forty days elapsed before the waters reached the ship and floated it. It is not unlikely that the ark was built on rising ground, for here supplies of timber would be nearer. It has puzzled some simple antiquarians to find dug-out canoes of prehistoric date on the tops of hills; but they did not reflect that the maker of a canoe would construct his vessel where the suitable wood could be found, since it would be much easier to carry the finished canoe to the shore than to drag thither the solid log out of which it was to be fashioned. So Noah would naturally build his ark where the wood he required could be procured most easily. The Chaldean narrator seems to have overlooked this simple consideration, for he mentions a launching and trial-trip of the ship, a sure mark that he is a later authority than the writer in Genesis.

The inmates of the ark now felt that it was moving on the waters, a new and dread sensation which must have deeply impressed their minds, and they soon

became aware that the ark not merely floated, but 'went,' or made progress in some definite direction. Remark the simple yet significant notes—'The ark was lift up from the earth,' and 'the ark went upon the face of the waters.' The direction of driftage is not stated, but it is a fair inference, from the probable place of departure in Chaldea and that of final grounding of the ark, that it was northward or inland, which would indicate that the chief supply of water was from the Indian Ocean, and that it was flowing inward toward the great sunken plain of interior Asia, which, however, the ark did not reach, but grounded in the hilly region known to the Hebrews as Ararat, to the Chaldeans as Nisr. A curious statement is made here (Elohist) as to the depth of the water being fifteen cubits. Even in a flat country so small a depth would not cover the rising grounds; but this is obviously not the meaning of the narrator, but something much more sensible and practical. It is not unlikely that the measure stated was the water-draught of the loaded ark, and that as the voyagers felt it rise and fall on the waves, they may have experienced some anxiety lest it should strike and go to pieces. It was no small part of the providential arrangement in their case that in the track of the ark everything was submerged more than fifteen cubits before they reached it. Hence this note, which is at the same time one of the criteria of the simple veracity of the history. The only other remark in this part of the narrative relates to the entire sub-

mergence of the whole country within sight, and the consequent destruction of animal life; and here the enumeration covers all land animals, and the terms used are thus more general than those applied to the animals preserved in the ark. The Deluge culminated, in so far as our narrator observed, in one hundred and fifty days.

His next experience is of a gale of wind, accompanied or followed by cessation of the rain and of the inflow of the oceanic waters.[1] The waters then decreased, not regularly, but by an intermittent process, 'going and returning'; but whether this was a tidal phenomenon or of the nature of earthquake waves we have no information. At length the ark grounded, apparently on high ground or in thick weather, for no land was visible; but at length, after two months, neighbouring hill-tops were seen.

The incident of sending out birds to test the recession of the waters deserves notice, because of its apparently trivial nature, because it appears with variations in the Chaldean account, and because it has been treated in a remarkably unscientific manner by some critics. It indicates the uncertainty which would arise in the mind of the patriarch because of the fluctuating decrease of the waters, and possibly also a misty condition of the air preventing a distinct view of distant objects. The birds selected for the purpose were singularly appropriate. The raven is

[1] Genesis viii. 1, 2: 'And Elohim made a wind to pass over the earth, and the waters abated,' &c.

by habit a wanderer, and remarkable for power of flight and clearness of distant vision. So long, therefore, as it made the ark its headquarters, 'going and returning'[1] from its search for food, it might be inferred that no habitable land was accessible. The dove, sent out immediately after the raven,[2] is of a different habit. It could not act as a scavenger of the waters and go and return, but could leave only if it found land covered with vegetation. As a domesticated bird also, it would naturally come back to be taken into the ark. Hence it was sent forth at intervals of seven days, returning with an olive leaf when it found tree tops above the water, and remaining away when it found food and shelter. The Chaldean account adds a third bird, the swallow—a perfectly useless addition, since this bird, if taken into the ark at all, would from its habits of life be incapable of affording any information. This addition is a mark of interpolation in the Chaldean version, and proceeded perhaps from the sacred character attached by popular superstition to the swallow, or from the familiar habits of the bird suggesting to some later editor its appropriateness. Singularly enough, the usually judicious Schrader, probably from deficient knowledge of the habits of birds, fails to appreciate all this, and after a long discussion prefers the

[1] Margin of Authorised Version; less fully, 'to and fro' in the text.

[2] There is no reason to suppose, as some have done, a hiatus here in the narrative.

Babylonian legend for reasons of a most unscientific character, actually condemning the perfectly natural and clear Biblical story as artificial and due to a recent emendation. He says: 'When the story passed over to the Hebrews, the name of the swallow has disappeared,' and 'it is only from the Babylonian narrative that the selection of the different birds becomes clear.' This little disquisition of Schrader is, indeed, one of the most amusing instances of that inversion of sound criticism which results when unscientific commentators tamper with the plain statements of truthful and observant witnesses.

The uncertainty indicated by the mission of the birds seems to have continued from the first day of the tenth to the first day of the first month, when Noah at length ventured to remove the covering of the ark and inspect the condition of the surrounding country, now abandoned by the waters, but not thoroughly dried for some time longer. Still, so timid was the patriarch that he did not dare without a special command to leave his place of safety. I am aware that if the two alleged documents are arbitrarily separated it is possible to see here some apparent contradiction in dates; but this is not necessary if we leave them in their original relation.[1]

It will be observed that a narrative such as that summarised above bears unmistakably stamped upon it the characteristics of the testimony of an eye-witness. By whomsoever reduced to writing and finally edited,

[1] See Green, *Hebraica*, *l.c.*

it must, if genuine, have come down nearly in its present form from the time of the catastrophe which it relates. It follows that the narrator leaves no place for the current questions as to the universality of the Deluge. It was universal so far as his experience extended, but that is all. He is not responsible for what occurred beyond the limits of his observation and beyond the fact that man, so far as known to him, perished. If, therefore, as some have held,[1] Balaam in his prophecy refers to Cainite populations as extant in his time, or if Moses declines to trace to any of the postdiluvian patriarchs the Rephaim, Emim, Zuzim and other prehistoric peoples of Palestine, we may infer, without any contradiction of our narrative, that there were surviving antediluvians other than the Noachidæ, whatever improbability may attach to this on other grounds, and more especially from the now ascertained extension of the post-glacial submergence over nearly all parts of the northern hemisphere.

Let it also be noticed that beyond the prophetic intimation to Noah, and the one expression, Jahveh 'shut him in,' which may refer merely to providential care, there is, as already remarked, nothing miraculous, in the popular sense of that term ; and that mythical elements, such as those introduced into the Babylonian narrative, are altogether absent. The story relates to plain matters of fact, which, if they happened at all, any one might observe, and for the proof of which

[1] Motais, *Déluge Biblique*.

any ordinary testimony would be sufficient. It may be profitable, however, to revert here to the probable relation of this narrative to the geological facts already adverted to, and also its bearing on the mythical and polytheistic additions which we find in the Deluge stories of heathen nations.

Regarding the Biblical Deluge as a record of a submergence of a vast region of Eur-Asia and Northern Africa, at least, while no similar catastrophe has been recorded subsequently, it is unquestionable that submergences equally important have occurred again and again in the geological history of our continents, and have been equally destructive of animal life. It is true that most of these are believed to have been of more slow and gradual character than that recorded in Genesis, but in the case of many of them this is a very uncertain inference from the analogy of modern changes ; and it is certain that the post-glacial submergence, which closed the era of palæocosmic man and his companion animals, must have been one of the most transient on record. On the other hand, we need not limit the entire duration of the Noachic submergence to the single year whose record has been preserved to us. Local subsidence may have been in progress throughout the later antediluvian age, and the experience of the narrator in Genesis may have related only to its culmination in the central district of human residence. Finally, if man was really a witness of this last great continental sub-

mergence, we cannot be too thankful that there were so intelligent witnesses to preserve the record of the event for our information.

It is needless, then, to enter into further details, though these are sufficient to fill volumes if desired, in proof of the remarkable convergence of history and geological discovery on the great Flood, which now constitutes one of the most remarkable illustrations of the points of contact of science proceeding on its own methods of investigation and Divine revelation, preserving the records of ancient events otherwise ost or buried under accretions of myth and fancy. I have already endeavoured to show that the earliest race of palæocosmic men, that of Canstadt, very fairly corresponds with what may have been the character istics of the ruder tribes of Cainites, and that if we regard the Truchère skull as representing the Sethite people, we may suppose the Cro-magnon race to represent the giants, or Nephelim, who sprung from the union of the two pure types. I have also referred to the possibility that the Truchère race, so little known to us as yet, may have been a prot-Iberian people, possessing even before the Flood domestic animals, agriculture, and some of the arts of life, corresponding to what we find in the earliest postdiluvian nations. This is, indeed, implied in the fact that the postdiluvian nations present themselves to us at once with a somewhat advanced condition of the arts, especially in Chaldea and in Egypt. Such possibilities may serve to suggest to speculative archæologists that they

cannot safely assume that all antediluvian or palæolithic tribes were barbarous or semi-brutal, or that there was a continuous development of humanity without any diluvial catastrophe. It is also somewhat rash to carry back the chronology of Egyptians and Babylonians to times when, as we know on physical evidence, the Valley of the Nile was an arm of the sea, and the plain of the Euphrates an extension of the Persian Gulf. It is fortunate for the Bible that such assumptions are not required by its history.

CHAPTER X

SPECIAL QUESTIONS RESPECTING THE DELUGE

In studying the literature relating to the Deluge, we are constantly met by questions as to its so-called 'universality.' Was it a local or universal Deluge and if universal in what sense so? This is a point in which neglect or ignorance of the necessary physical conditions has led to the strangest misconceptions.

It is obvious that there are four senses in which a catastrophe like the Deluge of Noah may be affirmed or denied to have been universal.

1. It may have been universal in the sense of being a deep stratum of water covering the whole globe, both land and sea. Such universality could not have been in the mind of the writer, and probably has been claimed knowingly by no writer in modern times. Halley in the last century understood the conditions of such universality, though he seems to have supposed that the impact of a comet might supply the necessary water. Owen has directed attention to the fact that such a deluge might be as

fatal to the inhabitants of the waters as to those of the land. In any case, such universality would demand an enormous supply of water from some extra-terrestrial source.

2. The Deluge may have been universal in the sense of being a submersion of the whole of the land, either by subsidence or by elevation of the ocean bed. Such a state of things may have existed in primitive geological ages before our continents were elevated, but we have no scientific evidence of its recurrence at any later time, though large portions of the continents have been again and again submerged. The writers of Genesis i. and of Psalm civ. seem to have known of no such total submergence since the elevation of the first dry land, and nothing of this kind is expressed or certainly implied in the Deluge story.

3. The Deluge may have been universal in so far as man, its chief object, and certain animals useful or necessary to him, are concerned. This kind of universality would seem to have been before the mind of the writer when he says that 'Noah only, and they who were with him in the ark, remained alive.'[1]

4. The Deluge may have been universal in so far as the area and observation and information of the narrator extended. The story is evidently told in the form of a narrative derived from eye-witnesses, and this form seems even to have been chosen or

[1] Genesis vii. 23.

retained purposely to avoid any question of universality of the first and second kinds referred to above. The same form of narrative is preserved in the Chaldean legend. This fact is not affected by the doctrine held by some of the schools of disintegrators, that the narrative is divisible into two documents, respectively 'Jahvistic' and 'Elohistic.' I have elsewhere [1] shown that there is a very different reason for the use of these two names of God. But if there were two original witnesses whose statements were put together by an editor, this surely does not invalidate their testimony or deprive them of the right to have it understood as they intended.

It is thus evident that the whole question of 'universality' is little more than a mere useless logomachy, having no direct relation to the facts or to the credibility of the narrative.

There are also in connection with this question of universality certain scientific and historical facts already referred to which we may again summarise here, and which are essential to the understanding of the question. Nothing is more certainly known in geology than that at the close of the later tertiary or pleistocene age the continents of the northern hemisphere stood higher and spread their borders more widely than at present. In this period also they were tenanted by a very grand and varied mammalian fauna, and it is in this continental age of the later pleistocene or early modern time that we

[1] *Modern Science in Bible Lands*, chap. iv.

find the first unequivocal evidence of man as existing on various parts of the continents. At the close of this period occurred changes, whether sudden or gradual we do not know, though they could not have occupied a very long time, which led to the extinction of the earliest races of men and many contemporaneous animals. That these changes were in part, at least, of the nature of submergence we learn from the fact that our present continents are more sunken or less elevated out of the water, and also from the deposit of superficial gravels and other *detritus* more recent than the pleistocene over their surfaces. We are thus shut up by geological facts to the belief in a Deluge geologically modern and practically universal.

One other objection to the Deluge narrative perhaps deserves a word of comment—that urged against the statement of the gradual disappearance of the waters. The extraordinary difficulty is raised respecting this, that the water must have rushed seaward in a furious torrent. The objection is based apparently on the idea that the foundation for the original narrative was a river inundation in the Mesopotamian plain. This cannot be admitted ; but if it were, the objection would not apply. River inundations, whether of the Nile or Euphrates, subside inch by inch, not after the manner of mountain torrents. Thus this objection is another instance of difficulties gratuitously imported into the history.

In point of fact the narrator represents the

Deluge as prevailing for a whole year, which would be impossible in the case of a river inundation. He attributes it in part, at least, to the 'great deep'—that is, the ocean; and he represents the ark as drifting inland or toward the north. Such conditions can be satisfied only by the supposition of a subsidence of the land similar in kind, at least, to the great post-glacial flood of geology. Partial subsidences of this kind, local but very extreme, have occurred even in later times, as, for instance, in the Runn of Cutch, the delta of the Mississippi, and the delta of the Nile; and if the objectors are determined to make the Deluge of Noah very local and more recent than the post-glacial flood, it would be more rational to refer to subsidences like those just mentioned, and of which they will find examples in Lyell's *Principles* and other geological books. It is, however, decidedly more probable that Noah's flood is identical with that which destroyed the men of the mammoth age, the palæocosmic or 'palæolithic' men;[1] and in that case the recession of the waters would probably be gradual, but intermittent, 'going and returning,' as our ancient narrator has it; but there need not have been any violent *débâcle*.

It is also to be noted that a submergence of the land and consequent deluge may be cataclysmic or tranquil, according to local circumstances, and that it may have been locally sudden, while for the whole world it was gradual and of longer duration. Such

[1] *Modern Science in Bible Lands*, chaps. iii. and iv.

differences must belong to all great submergences, which may in one place produce great disturbance and very coarse deposits, in another may be quiet and deposit the finest silt. Even the flood of a river or the action of a tide admits of variations of this kind. In narrow channels the great tides of the Bay of Fundy rush as torrents; in wide bays they creep in imperceptibly.

The traditions and Biblical history of the Deluge not only furnish important material for connecting the geological ages with the period of human history, and for enabling us to realise the fact that early man was a witness of some of the later physical and vital vicissitudes that have passed over the earth, but may be correlated with other ancient traditions which seem at first sight to have no immediate relation to it.

As an example, I may refer to the well-known Egyptian fable of Atlantis, which may be a reminiscence of early man in the second continental period, and which we may, perhaps, even connect with the Mexican tradition of civilisation reaching America from the East.[1]

Plato has handed down to us a circumstantial tradition, derived from Egypt, of a great Atlantic continent west of Europe, once thickly peopled, and the seat of an empire that was dominant over the Mediterranean regions. This continent, or island,

[1] It is, perhaps, only an accident that *Atl* is the Mexican word for water.

was called Atlantis, and it had been submerged with all its people in prehistoric times. This tradition may have reference to certain geological facts of the early modern period already referred to. If the Egyptian tradition really extended back to the antediluvian period, we can readily understand their belief in the continent of Atlantis. We have already ascertained the great extension in that period of the land of Western Europe, and there may have been outlying insular tracts in the Atlantic now quite unknown to us. These lands may well have sustained nations of the gigantic Cro-magnon race, 'men of renown,' who, when their westward progress was stayed by the ocean, and they were checked in the north by the increasing cold, may have turned their arms against the dwellers on the Mediterranean coasts, perhaps in the age immediately preceding the Deluge. We know little as yet of the history of those Horshesu, or children of Horus, who are said to have preceded the historic period in Egypt. There must have been Egyptian literature about these people, and should this be recovered we shall probably learn more of Atlantis. In the meantime we may, at least, bring the tradition of that perished continent into harmony with geology and history. I may add that we need not consider the above view as at variance with that of those archæologists who, like the late Sir D. Wilson,[1] suppose the tradition of Atlantis to have been founded on vague intimations

[1] *The Lost Atlantis*, 1892.

of the existence of America, since any such intimations which reached the civilised nations of Southern Europe or Africa would naturally be considered as an indication that some part of the lost Atlantis still continued to exist.

In still another direction does the deluge story connect itself with physical probabilities. If we examine the Atlantic map representing the soundings of the Challenger expedition, we shall find evidence not only of that extension of land in temperate Western Europe which may have originated the story of Atlantis, but other dispositions of land, especially in the extreme north and south, which may have influenced antediluvian climate. We have reason to believe that in the second continental period, that of palæocosmic man, Baffin's Bay may have been greatly narrowed and Behring's Straits entirely closed, while large tracts of land existed around Iceland and west of Norway. There would thus be almost continuous land connection around the north pole, permitting easy extension of man and of hardy animals. There would also be much less access of ice to the North Atlantic.

At the same time in another region there was probably a land connection from Florida to South America by the Bahamas, and the equatorial current may have been more powerfully deflected northward than now. The effect would be to produce around the North Atlantic, and especially on the eastern side, a golden age of genial climate, fitted to early

man, but destined as time went on and geographical changes proceeded, preparatory to the great diluvial subsidence, to fade away into the cool and damp climate of the later post-glacial or antediluvian period. This again would lead to migrations, wars, and fierce struggles for existence among the human populations—a time of anarchy and violence preceding the final catastrophe.

Much collateral evidence in substantiation of these probabilities can be collected from the distribution of marine life [1] and the changes of level, even on the American coast. They conjure up before us strange visions of the prehistoric past, and of the vicissitudes of which man himself has been witness, and of which, whether through memory and tradition or the revelation of God, he has continued to retain some written records which, long dim and uncertain, are now beginning to be put into relation with physical facts ascertained by modern scientific observation.

We have already seen how the Deluge story and the fate of the antediluvians have interwoven themselves with the myths and superstitions of the Old World. The six great gods of the Egyptian pantheon represent the creative days, and the 'Sons of Horus' the antediluvians. So we have the ten patriarchs or kings of the old Chaldeans corresponding to those of Genesis, and the heaven-defying Titans of the old mythologies representing the giants before the Flood. Perhaps, however, no illustration of this is more

[1] See *The Ice Age in Canada*, by the author. Montreal: 1893.

patent or more touching than that well-known one of Ishtar, the Astarte of the Syrians, the Artemis of the Greeks, and who has been identified with the chief female divinity of many other ancient nations, even with that Diana whom 'all Asia and the inhabited world worshippeth.'

The Chaldean deluge tablets for the first time introduce her to us as an antediluvian goddess, and inform us that she is the deified mother of men, the same with the Biblical Isha, or Eve. In the crisis of the Deluge we are told, 'Ishtar spoke like a little child, the great goddess pronounced her discourse. Behold how mankind has returned to clay. I am *the mother who brought forth men*, and like the fishes they fill the sea. The gods because of the angels of the abyss are weeping with me.' Ishtar is thus the mother of men, herself deified and gone into the heavens, but even there mourning over her hapless children. She may be a star-goddess, or the moon may be her emblem ; but for all that she appears in this old legend as a deified human mother, with a mother's heart yearning over the progeny that had sprung from her womb, and had been nourished in her breast. It was this, more than her crescent or starry diadem, that commended her worship to her children. Her representative in Genesis, the first mother, Isha, or Eve, is no goddess, but a woman. Yet is she the emblem of life and the mother of a promised Redeemer of humanity, who is to undo the results of sin and to restore the Paradise of God

bruising the head of the great serpent who, in the Chaldean as in the Hebrew story, represents the power of evil. Ishtar has been represented as the bride of the god Tammuz, the Adonis [1] of the Greeks, and whose worship was one of the idolatries that led the women of Israel astray, 'weeping for Tammuz'; [2] but it now appears that, according to the oldest doctrine, she is his mother,[3] and he was a 'keeper of sheep,' dwelling in Eden, or Idinu, and murdered by his brother Adar, who is also a god, and more especially the god of war. In short, the story of Ishtar, Tammuz, and Adar, the parent of so many myths, is merely the familiar one of Cain and Abel. Hence the belief that the murder of Tammuz was connected with the Deluge, and hence the annual lamentation of the women for Tammuz when the spring inundations swelled and reddened the waters of the streams—a rite possibly even antediluvian, and commemorative of the mourning of the first mother for her slain son, to rescue whom it was fabled that she even descended into Hades.

Oppert regards the legend of Tammuz and Ishtar as a solar myth, and supposes that the story of Cain and Abel was based on it. But a family history of crime and sorrow is a much more real and probable thing as a basis for tradition than a solar myth, and naturalists at least will be disposed to invert the theory, and to believe that the simple Bible story was

[1] From the Semitic title 'Adonai,' my Lord.

[2] Ezekiel viii. 14.

[3] Sayce, *Hibbert Lectures*.

the foundation of all the varied cults and superstitions that clustered round Ishtar and Tammuz, as well as personages like Osiris and Isis, who seem to have been later avatars, or revivals of the same tale.

It would be easy to show that the deluge story has intimate connections with other ancient myths and superstitions, as well as with the results of modern archæology and geology. But were this all, our inquiry, however interesting and curious, would have little practical value. It has two important bearings on the present time. Christianity bases itself, its founder Himself being witness, on the early chapters of Genesis, as history and prophecy, and the treatment which these ancient and inspired records have met with in modern times at the hands of destructive criticism is doing its worst in aid of the anti-Christian tendencies of our time. To remove the doubts that have been cast on these old records is therefore a clear gain to the highest interests of humanity, and if theology and philology are unable to secure this benefit, natural science may well step forward to lend its aid. Another connection with present interests depends on the fact that, while superstitions akin to that which deified the mother of the promised seed, and introduced the world-wide cults of Astarte and Aphrodite, still reign over great masses of men, absolute materialism and desperate struggle for existence among men and nations are growing and extending themselves as never before since the antediluvian times, and are provoking a

like signal and direful vengeance. In the midst of all this, Christians look forward to the second coming of Jesus Christ to destroy the powers of evil and to inaugurate a better time; and it was He who said, 'As it came to pass in the days of Noah, even so shall it be in the days of the Son of Man.' Let us remember the old story of the flood of Noah lest those days come on us unawares.

CHAPTER XI

THE PREHISTORIC AND HISTORIC IN THE EAST

THE term prehistoric was first used by my friend Sir Daniel Wilson in his *Prehistoric Annals of Scotland.* It was intended to express 'the whole period disclosed to us by archæological evidence as distinguished from what is known by written records.' As Wilson himself reminds us, the term has no definite chronological significance, since historic records, properly so-called, extend back in different places to very different times. With reference, for example, to the Chaldean and Hebrew peoples, if we take their written records as history, this extends back to the Deluge at least. Written history in Egypt reaches to at least 3000 years B.C., while in Britain it extends no farther than to the landing of Julius Cæsar, and in America to the first voyage of Columbus. In Palestine we possess written records back to the time of Abraham, but these relate mainly to the Hebrew people. Of the populations which preceded the Abrahamic immigration, those 'Canaanites who were already in the land,' we have little history

before the Exodus, except the remarkable letters recently unearthed at Tel-el-Amarna, in Egypt. In Egypt we have very early records of the dwellers on the Nile, but of the Arabian and African peoples, whom they called Pun and Kesh, and the Asiatic peoples, whom they knew as Cheta and Hyksos, we have till lately known little more than their names and the representations of them on Egyptian monuments. In both countries there may be unsounded depths of unwritten history before the first Egyptian dynasty, and before the Abrahamic clan crossed the Jordan.

What, then, in Egypt and Palestine may be regarded as prehistoric? I would answer—(1) The geographical and other conditions of these countries immediately before the advent of man. (2) The evidence which they afford of the existence, habits, and history of man in periods altogether antecedent to any written history, except such notes as we have in the Bible and elsewhere as to the so-called antediluvian world. (3) The facts gleaned by archæological evidence as to tribes known to us by no records of their own, but only by occasional notices in the history or monuments of other peoples. In Egypt and Palestine such peoples as the Hyksos, the Anakim, the Amalekites, the Hittites, and Amorites are of this kind, though contemporary with historic peoples.

Prehistoric annals may thus, in these countries, embrace a wide scope, and may introduce us to un-

expected facts and questions respecting primitive humanity. I propose in the present chapter to direct attention to some points which may be regarded as definitely ascertained in so far as archæological evidence can give any certainty, though I cannot pretend, in so limited a space, to enter into details as to their evidence.

Before proceeding, I may refer by way of illustration to another instance brought into very prominent relief by the publication of Schuchardt's work on Schliemann's excavations. We all know how shadowy and unreal to our youthful minds were the Homeric stories of the heroic age of Greece, and our faith and certainty were not increased when we read in the works of learned German critics that the Homeric poems were composite productions of an age much later than that to which they were supposed to belong, and that their events were rather myths than history. How completely has all this been changed by the discoveries of Schliemann and his followers! Now we can stand on the very threshold over which Priam and Hector walked. We can see the jewels that may have adorned Helen or Andromache. We can see double-handled cups like that of old Nestor, and can recognise the inlaid work of the shield of Achilles, and can walk in the halls of Agamemnon. Thus the old Homeric heroes become real men, as those of our time, and we can understand their political and commercial relations with other old peoples before quite as shadowy.

Recent discoveries in Egypt take us still farther back. We now find that the 'Hanebu,' who invaded Egypt in the days of the Hebrew patriarchs, were prehistoric Greeks, already civilised, and probably possessing letters ages before the date of the Trojan War. So it is with the Bible history, when we see the contemporary pictures of the Egyptian slaves toiling at their bricks, or when we stand in the presence of the mummy of Rameses II. and know that we look on the face of the Pharaoh who enslaved the Hebrews, and from whose presence Moses fled.

Such discoveries give reality to history, and similar discoveries are daily carrying us back to old events, and to nations of whom there was no history whatever, and are making them like our daily friends and companions. A notable case is that of the children of Heth, known to us only incidentally by a few members of the nation who came in contact with the early Hebrews. Suddenly we found that these people were the great and formidable Kheta, or Khatti, who contended on equal terms with the Egyptians and Assyrians for the empire of Western Asia; and when we began to look for their remains, there appeared, one after another, stone monuments, seals, and engraved objects, recording their form and their greatness, till the tables have quite been turned, and there is danger that we may attach too much importance to their agency in times of which we have scarcely any written history. Thus, just as the

quarry and the mine reveal to us the fossil remains of animals and plants great in their time, but long since passed away, so do the spade and pick of the excavator constantly turn up for us the bones and the works of a fossil and prehistoric humanity.

Egypt may be said to have no prehistoric period, and our task with it will be limited to showing that its written history scarcely goes back as far as many Egyptologists suppose and confidently affirm, and that beyond this it has as yet afforded nothing. Egypt, in short, old though it seems, is really a new country. When its priests, according to Plato, taunted Solon with the newness of the Greeks and referred to the old western empire of Atlantis, they were probably trading on traditions of antediluvian times, which had no more relation to the actual history of the Egyptian people than to that of the Greeks.

The limestones and sandstones which bound the Nile valley, sometimes rising in precipitous cliffs from the bank of the stream, sometimes receding for many miles beyond the edge of the green alluvial plain, are rocks formed in cretaceous and early tertiary times under the sea, when all Northern Africa and Western Asia were beneath the ocean. When raised from the sea-bed to form land, they were variously bent and fractured, and the Nile valley occupies a rift or fault, which, lying between the hard ridges of the Arabian hills on the east and the more gentle elevations of the Nubian desert on the west, afforded an outlet for the waters of interior Africa and for the

great floods which in the rainy season pour down from the mountains of Abyssinia.

This outlet has been available and has been in process of erosion by running water from a period long anterior to the advent of man, and with this early prehuman history belonging to the miocene and pliocene periods of geology we have no need to meddle, except to state that it was closed by a great subsidence, that of the pleistocene or glacial period, when the land of North Africa and Western Asia was depressed several hundred feet, when Africa was separated from Asia, when the Nile valley was an arm of the sea, and when sea-shells were deposited on the rising grounds of Lower Egypt at a height of two hundred feet or more.[1] Such raised beaches are found not only in the Nile valley but on the shores of the Red Sea, and, as we shall see, along the coast of Palestine; but, so far as known, no remains of man have been found in connection with them. This great depression must, however, geologically speaking, have been not much earlier than the advent of man, since in many parts of the world we find human remains in deposits of the next succeeding era.

This next period, that known to geologists as the post-glacial or early modern, was characterised by an entire change of physical conditions. The continents of the northern hemisphere were higher and

[1] Hull, *Geology of Palestine and adjacent Districts*, Palestine Exploration Fund. Dawson, *Modern Science in Bible Lands*, p. 311 and Appendix. References will be found in these works to the labours of Fraas, Schweinfurth, and others.

wider than now. The details of this we have already considered, and have seen that at this time the Mediterranean was divided into two basins, and a broad fringe of low land, now submerged, lay around its eastern end. This was the age of those early palæolithic or palæocosmic men whose remains are found in the caverns and gravels of Europe and Asia. What was the condition of Egypt at this time? The Nile must have been flowing in its valley; but there was probably a waterfall or cataract at Silsilis in Upper Egypt, and rapids lower down, and the alluvial plain was much less extensive than now and forest-clad, while the river seems to have been unable to reach the Mediterranean and to have turned abruptly eastward, discharging into a lake where the Isthmus of Suez now is, and probably running thence into the Red Sea, so that at this time the waters of the Nile approached very near to those of the Jordan, a fact which accounts for that similarity of their modern fauna which has been remarked by so many naturalists. I have myself collected in the deposits of this old lake, near Ismailia, fresh-water shells of kinds now living in the Upper Nile. If at this time men visited the Nile valley, they must have been only a few bold hunters in search of game, and having their permanent homes on the Mediterranean plains now submerged.

If they left any remains we should find these in caverns or rock shelters, or in the old gravels belonging to this period which here and there project through the alluvial plain. At one of these places, Jebel

Assart, near Thebes, General Pitt-Rivers has satisfied himself of the occurrence of flint chips which may have been of human workmanship ;[1] but after a day's collecting at the spot, I failed to convince myself that the numerous flint flakes in the gravel were other than accidental fragments. If they really are flint knives they are older than the period we are now considering, and must be much older than the first dynasty of the Egyptian historic kings.[2] These gravels were indeed, in early Egyptian times, so consolidated that tombs were excavated in them. Independently of this case, I know of no trustworthy evidence of the residence of the earliest men in Egypt. Yet we know that at this time rude hunting tribes had spread themselves over Western Asia, and over Europe as far as the Atlantic, and were slaying the mammoth, the hairy rhinoceros, the wild horse, and other animals now extinct. They were the so-called 'palæolithic' or historically antediluvian men, belonging, like the animals they hunted, to extinct races, quite dissimilar physically from the historical Egyptians. And yet in a recent review of the late Miss Edwards's charming work, *Pharaohs, Fellahs, and Explorers*, she was taken to task by an eminent Egyptologist for statements similar to the above. On the evidence of two additional finds of flint implements *on the surface*, he affirms the existence

[1] *Journal of Archæological Society*, 1881. Haynes's *Journal of the American Academy of Sciences*.

[2] Dawson, *Egypt and Syria*, p. 149.

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of man in Egypt at a time when 'the Arabian deserts were covered with verdure and intersected by numerous streams,' that is, geologically speaking, in the early pleistocene or pliocene period, or even in the miocene!

Singularly enough, therefore, Egypt is to the prehistoric annalist not an old country—less old indeed than France and England, in both of which we find evidence of the residence of the palæolithic cave men of the mammoth age. Thus, when we go beyond local history into the prehistoric past, our judgment as to the relative age of countries may be strangely reversed.

It is true that in Egypt, as in most other countries, flint flakes, or other worked flints, are common on the surface and in the superficial soil; but there is no good evidence that they did not belong to historic times. A vivid light has been thrown on this point by Petrie's discovery, in *débris* attributed to the age of the twelfth dynasty, or approximately that of the Hebrew patriarchs, of a wooden sickle of the ordinary shape, but armed with flint flakes serrated at their edges,[1] though the handle is beautifully curved in such a manner as to give a better and more convenient hold than with those now in use. This primitive implement presents to us the Egyptian farmer of that age reaping his fields of wheat and barley with implements similar to those of the palæocosmic men. No doubt, at the same time, he used a

[1] *Kahun and Garob*, Egyptian Exploration Fund publications.

harrow armed with rude flints, and may have used flint flakes for cutting wood or for pointing his arrows. Yet he was a member of a civilised and highly-organised nation, which could execute great works of canalisation and embankment, and could construct tombs and temples that have not since been surpassed. Can we doubt that the common people in Palestine and other neighbouring countries were equally in the flint age, or be surprised that, somewhat later, Joshua used flint knives to circumcise the Israelites?[1] How remarkable are these links of connection between early Eastern civilisation and the stone age! and they relate to mere flakes, such as if found separately might be styled 'palæolithic.'

In accordance with all this, when we examine the tenants of the oldest Egyptian tombs, who are known to us by their sculptured statues and their carved and painted portraits, we find them to be the same with the Egyptians of historic times, and not very dissimilar from the modern Copts, and we also find that their arts and civilisation were not very unlike those of comparatively late date.

There are, however, some points in which the early condition of even historic Egypt was different from the present or from anything recorded in written history.

I have elsewhere endeavoured, with the aid of my friend Dr. Schweinfurth, to restore the appearance of the Nile valley when first visited by man in the post-

[1] Joshua v. 2, marginal reading.

diluvial period. It was then probably densely wooded with forests similar to those in the modern Soudan, and must have swarmed with animal life in the air, on the land, and in the water, including many formidable and dangerous beasts. On the other hand, to a people derived from the Euphratean plains and accustomed to irrigation, it must have seemed a very garden of the Lord in its fertility and resources.

There is good reason to credit the Egyptian traditions that the first colonists crossed over from Southern Arabia by the Red Sea from that land of Pun to which the Egyptians attributed their theology, and settled in the neighbourhood of Abydos, and that they made their way thence to the northward, at a time when the delta was yet a mere swamp,[1] and when they had slowly to extend their cultivation in Lower Egypt by dikes and canals. If we ask when the first immigrants arrived, we are met by the most extravagantly varied estimates, derived mainly from attempts to deduce a chronology from the dynastic lists of Egyptian kings. That these are very uncertain, and in part duplicated, is now generally understood, but still there is a tendency to ask for a time far exceeding that for which we have any good warrant in authentic history elsewhere. Herodotus estimated the time necessary for the deposition of the mud of the delta at 20,000 years; but if we assume that this deposit has been formed since the land approximately attained to its present level, allowing for

[1] *Herodotus*, Book II. chap. 15.

some subsidence in the delta in consequence of the weight of sediment, and estimating the average rate of deposition at one fifteenth of an inch per annum, which is as low an amount as can probably be assumed, we shall have numbers ranging from 5,300 to about 7,000 years for the lapse of time since the delta was a bay of the Mediterranean.

It is true that the recent borings in the delta, under the officers of the British Engineers, have shown a great depth in some places without reaching the original bottom of the old bay. Some geologists have accordingly inferred from this a much greater age for the deposit than that above stated,[1] and in this they are in one respect justified; but they have to bear in mind that only the upper part of the material belongs to the modern period. A vast thickness is due to the pleistocene and pliocene ages, when the Nile was cutting out its valley and depositing the excavated material in the sea at its mouth. A careful examination of the borings proves by their composition that this is actually the case.[2] Geologists who have been guided by these facts in their estimates of time have been taunted as affirming that a great diluvial catastrophe occurred while quiet government and civilised life were going on in Egypt. The evidence for this early date of Egyptian colonisation of the Nile valley is, as everyone knows, doubtful,

[1] Judd, *Report to Royal Society*, 1885.

[2] *Modern Science in Bible Lands*, where evidence of similar dates in other countries is stated.

and it might be retorted that archæologists represent the Egyptian government as dating from a period when the Nile valley was an inland district, and when the centres of human population must have been, principally at least, on lands now submerged.

As an example of the fanciful way in which this subject is sometimes treated, I may cite the fabulous antiquity attributed to the great sphinx of Gizeh. We are told that it is the most ancient monument in Egypt, antedating the pyramids, and belonging to the time of the mystic 'Horshesu,' or people of Horus, of Egyptian tradition. In one sense this is true, since the sphinx is merely an undisturbed mass of the eocene limestone of the plateau. But its form must have been given to it after the surrounding limestone was quarried away by the builders of the pyramids, and consequently long after the founding of Memphis by the first Egyptian king Mena. The sphinx is, in short, a block of stone left by the quarrymen, and probably shaped by them as an appropriate monument to the workmen who died while the neighbouring pyramids were being built. A similar monument, of immensely greater antiquity from a geological point of view, exists near Montreal, in a huge boulder of Laurentian gneiss, placed on a pedestal by the workmen employed on the Victoria Bridge, in memory of immigrants who died of ship fever in the years when the bridge was being built.

It follows from all this that the monumental history of Egypt, extending to about 3000 years B.C.,

gives us the whole story of the country, unless some chance memorial of a population belonging to the post-glacial age should in future be found. There are, however, things in Egypt which illustrate prehistoric times in other countries, and some of these have lately thrown a new and strange light on the early history of Palestine, and especially on the Bible history.

One of the kings of the eighteenth dynasty, whose historical position was probably between the time of Joseph and that of Moses, Amunoph III., is believed to have married an Asiatic wife, and under her influence, he and his successor, Amunoph IV., or Khu en-Aten, seem to have swerved from the old polytheism of Egypt, and introduced a new worship, that of Aten, a god visibly represented by the disk of the sun, and, therefore, in some sense identical with Ra, the chief god of Egypt; but there was something in this new worship offensive to the priests of Ra. Perhaps it was regarded as a Semitic or Asiatic innovation, or led to the introduction of unpopular Semitic priests and officers. Amunoph IV. consequently abandoned the royal residence at Thebes, and established a new capital at a place now called Tel-el-Amarna, almost at the boundary of Upper and Lower Egypt, and from this place he ruled not only Egypt but a vast region in Western Asia, which had been subjected to the Egyptian government in the reign of the third Amunoph. From these subject districts, extending from the

frontiers of Egypt to Asia Minor on the north, and to the Euphrates on the east, came great numbers of despatches to the Pharaoh, and these were written not on papyrus or skin, but on tablets of clay hardened by baking, and the writing was not that of Egypt, but the arrow-head script of Chaldea, which seems at this time to have been the current writing throughout Western Asia.[1]

The scribes of the Egyptian king read these documents, answered them as directed by their master, docketed them, and laid them up for reference ; and, strange to say, a few years ago, Arabs, digging in the old mounds, brought them to light, and we have before us, translated into English, a great number of letters, written from cities of Palestine and its vicinity about a hundred years before the Exodus, and giving us word-pictures of the politics and conflicts of the Canaanites and Hittites and other peoples, long before Joshua came in contact with them. Among other things in this correspondence, we find remarkable confirmation of the sacred and political influence of Jerusalem, which the Bible presents to us in the widely separated stories of Melchisedec, king of Salem, in the time of Abraham,

[1] It is possible, however, that it may really have been a language of diplomacy merely, and may have been used by the Semitic agents of Amunoph as a cipher to communicate with the Egyptian court, and which could not be read by messengers or enemies acquainted only with Hittite or Egyptian hieroglyphics or with the Phœnician characters. For a similar case see 2 Kings xviii. 26.

and of the suzerainty of Adonizedec, king of Jerusalem, in the time of Joshua.

At the time in question, Jerusalem was ruled by a king or chief, subject to Egypt, but, as in the times of Abraham and Joshua, exercising some headship over neighbouring cities. He complains of certain hostile peoples called *chabiri*, a name supposed by Zimmel[1] to be equivalent to Ibrim or Hebrews, which to some may seem strange, as the Israelites were, according to the generally received chronology, at this time in Egypt. We must bear in mind, however, that according to the Bible the Israelites were not the only 'children of Eber.' The Edomites, Moabites, Ammonites, Ishmaelites, and Midianites were equally entitled to this name; and we know, from the second chapter of Deuteronomy, that these were warlike and intrusive peoples, who had, before the Exodus, dispossessed several native tribes, so that we do not wonder at the fact that a king of Jerusalem might have been suffering from their attacks long before the Exodus.[2] It may be noted incidentally here, that this wide application of the term Hebrew accords with the use of the name *Aperiu* for Semitic peoples other than Israelites in Egypt.

[1] Inaugural Lecture, Halle, 1891. Possibly these people were merely 'confederate' Hittites and Amorites (Sayce, *Records of the Past*).

[2] I cannot agree with Conder that the Exodus took place as early as the time of Amunoph III. The evidence we have from Egyptian sources plainly indicates one of the immediate successors of Rameses II. as the Pharaoh of the Exodus.

We have here also a note on an obscure passage in the life of Moses, namely, his apparent want of acquaintance with the name Jehovah until revealed to him at Horeb.[1] Now, as reported in Exodus, Moses in that interview addressed God as 'Adon,' which is supposed to be the Hebrew equivalent of 'Aten,' the meaning being Lord. This is a curious incidental agreement with the prevalence of the Aten worship in Egypt, and shows that this name may have been currently used by the Israelites, whose God Moses himself calls Adon, till commanded to use the name Jehovah.

A second point of contact of Egypt and Palestine is in the painting and sculptures of hostile and conquered nations in Egyptian temples and tombs. These were evidently intended to be portraits, and an admirable series of them has been published by Mr. Petrie under a commission from the British Association for the Advancement of Science. By means of these excellent photographs, now before me, we can see for ourselves the physiognomy and form of head of the Amorite, Philistine, Hittite, and many other peoples previously known to us only by name and a few historical facts ; and thus with their correspondence, as preserved in the Tel-el-Amarna tablets, and their pictures as given by Petrie, we

[1] Exodus iii. 16 *et seqq.* This passage has been often misunderstood, but it certainly shows that the name Jehovah had become nearly obsolete among the Hebrews in Egypt, and that the name usually given to God was Adon or Aten.

have them before us much as we have the speeches and portraits of our contemporaries in the illustrated newspapers, and can venture to express some opinion as to their ethnic affinities and appearance, and can judge more accurately as to the familiar statements of the Bible respecting them.[1] Lastly, Maspero and Tomkins have, with the aid of the names fixed by the survey of Western Palestine, revised the lists given by Thothmes III., in the temple of Karnak, of the places which this Egyptian Alexander had conquered ; and they have thus verified the Hebrew geography of the Books of Joshua and Judges.

Another unexpected acquisition is the solution of the mystery which has enshrouded that mysterious people known as Hyksos or shepherd kings, who invaded Egypt about the time of the Hebrew patriarchs, and, after keeping the Egyptians in subjection for centuries, were finally expelled by the predecessors of the Amunoph already referred to. They constitute a great feature in early Egyptian history, but disappear mysteriously, leaving no trace but a few sculptured heads, Turanian in aspect and markedly contrasting with those of the native Egyptians. It now appears that a people of Northern Syria and Mesopotamia, known to the Egyptians at a later time as Mitanni, and who were neighbours of and associated with the Northern Hittites, have the features of the Hyksos. It also seems from a letter in the Tel-el-Amarna tablets that they spoke

[1] Sayce, *Races of the Old Testament*, Religious Tract Society.

a non-Semitic or Turanian language akin to that of the Hittites. Thus we have traced the shepherd kings to their origin, and, curiously enough, Cushan-rish-athaim, who oppressed the Israelites in the days of Othniel, seems to represent a later inroad of the same people.

Such 'restitutions of decayed intelligence' now meet us on every hand as the results of modern exploration, and are enabling us to bridge over the gaps which have separated the geological ages from the prehistoric and historic human periods in those ancient countries where civilisation seems to have originated.

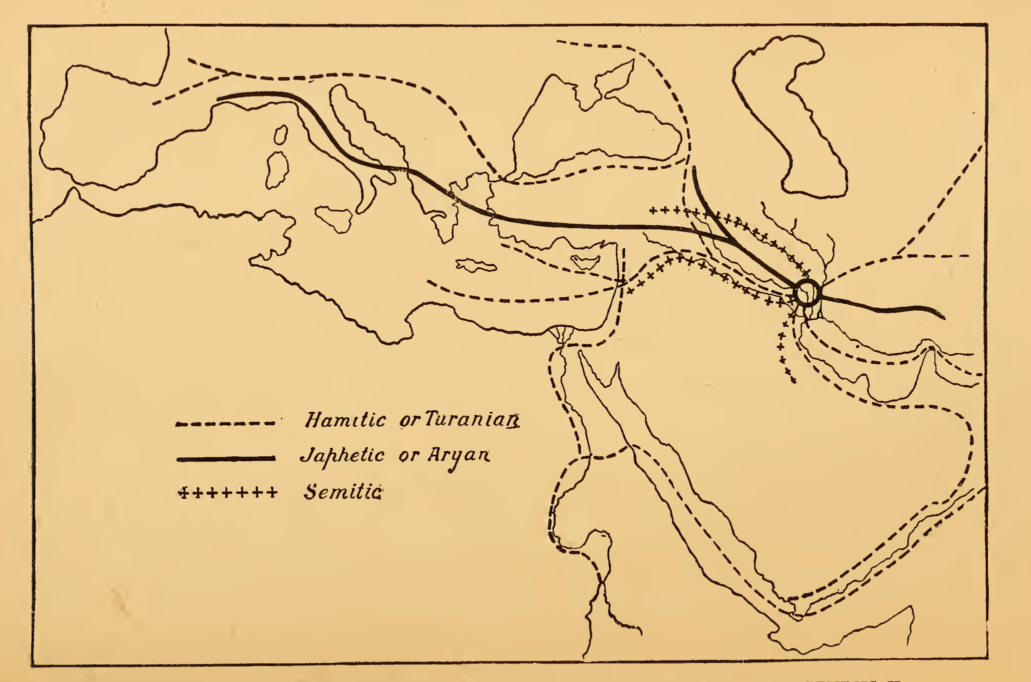
CHAPTER XII

THE NEANTHROPIC DISPERSION AND ALLIED TOPICS

THE remarkable record of the early distribution of the sons of Noah ('Toledoth' of the sons of Noah) in Genesis x. may be regarded, relatively to most of the nations it refers to, as a scrap of prehistoric lore of the most intensely interesting character. From the old 'Phaleg' of Bochart to the recent commentaries of Delitzsch and other German scholars, it has received a host of more or less conjectural explanations; and while all agree in extolling its value and importance as a 'Beginning of History,' nothing can be more various than the views taken of it. Only in the light of the recent discoveries and researches already referred to can we arrive at a clear conception of its import; but with these and some common sense we may hope to be more fortunate than the older interpreters. It is necessary, however, to explain here that, for want of a little scientific precision, many modern archæologists still fail in their interpretations. They tell us that the Toledoth are not properly 'ethnological,' but rather 'ethnographical,'

and that we are to regard the document as referring, not to the genealogical affiliations of nations, but to their accidental geographical positions at the time of the record.

Now this is precisely what the writer, with a sure scientific instinct, carefully guards against, and explicitly informs us he did not intend. He tells us that he gives the '*generations* of the sons of Noah' and their descendants, and at the ends of the three lists relating to these sons, he is careful to say that he has given them 'in their lands, each according to his language, after their families, in their nations,' or the formula is slightly varied into 'after their families, after their tongues, in their lands, in their nations.' Lastly, in the conclusion of the whole table he reiterates, 'These are the *families* of the sons of Noah, according to their generations, after their nations.' All these statements, let it be observed, are acknowledged to be parts of one (Elohistic) document. It is clear, therefore, that the writer intends us to understand that the determining elements of his classification are neither physical characters nor accidents of geographical distribution, but descent and original language—two primary and scientific grounds of classification, and which common sense requires us to adhere to in interpreting the document, whose value will depend on the certainty with which the writer could ascertain facts as to these criteria: criteria which are, of course, less open to the observation of later inquirers, who may find difficulty in



MAP SHOWING LINES OF POSTDILUVIAN MIGRATIONS FROM SHINAR, AS IN GENESIS X.

ascertaining either descent or *original* language, and in default of these may be obliged to resort to other grounds of classification.

Among modern archæologists it has been a fruitful source of controversy whether we should classify men according to their skulls or to their tongues; in other words, whether physical characters or linguistic should be dominant in our classifications. Neither ground is absolutely certain. We may find long and short skulls in the same grave-mound, and there are intermediate forms which defy certain arrangement. In like manner history assures us that people of one race have often adopted the language of another. True science warns us that we may err unless we give a fair valuation to every available character. The ethnologist of Genesis considers both physical and linguistic characters, but bases his arrangement mainly on the sure ground of descent along with *original* language.

It may be said, however, that if taken in the sense obviously intended by the writer, the list will not correspond with the facts. A few data have, however, to be taken into the account in order to give this early writer fair play.

1. The record has nothing to do with antediluvian peoples or with survivors of the Deluge other than the sons of Noah, if there were any such. Therefore, those ethnologists who are sceptical as to the historical Deluge, and who postulate an uninterrupted advance of man through long ages of semi-bestial

brutality, have nothing in common with our narrator, and cannot possibly understand his statements.

2. The document does not profess to be a series of ethnological inferences from the present or ancient characters of different nations, but an actual historical statement of the known migrations of men from a common centre in Shinar, the Sumir of the Chaldeans.

3. It relates only to the primary distribution of men from their alleged centre over certain districts of Western Asia, Eastern Europe, and Northern Africa, and does not profess to know anything of their subsequent migrations or history.

4. It is thus not responsible for those later, even if very ancient, changes which displaced one race by another, or obliged one race to move on by the pressure of another, nor for any changes of language or mixtures of races which may have occurred in these movements.

5. It affirms nothing as to the physical characters of the races referred to, except as they may be inferred from heredity, but it implies some resemblance in language between the derivatives of the same stock, and this, be it observed, notwithstanding the added narrative of the confusion of tongues at Babel,[1] which the narrator does not regard as interfering with the fact of languages originally forming a few branches proceeding from a common stock.

[1] Held by some to belong to another (Jahvistic) document, but certainly incorporated by the early editor.

6. If we ask what our narrator supposed to be the original or Noachic tongue, we might infer from his three lines of descent, and from the locality of the dispersion and the episode of Nimrod's prehistoric kingdom, that the primitive language of Chaldea would be the original stem; and this we now know from authentic written records to have been an agglutinate language of the type usually known as Turanian, and more closely allied to the Tartar and Chinese tongues than to other kinds of speech. It would follow that what we now call Semitic and Aryan or Japhetic forms of speech must, in the view of our ancient authority, date from the sequelæ of the great 'confusion of tongues.'

These points being premised, we can clear away the fogs which have been gathered around this little luminous spot in the early history of the world, and can trace at least the principal ethnic lines of radiation from it. Though the writer gives us three main branches of affiliation of the children of Noah, he really refers to six principal lines of migration, three of them belonging to that multifarious progeny of Ham, in which he seems to include both the Turanian and Negroid types of our ordinary classifications, as well as some of the brown and yellow races.

One of the lines of affiliation of Ham leads eastward and is not traced; but if the Cushite people, who are said to have gone to the land which in earlier antediluvian times was that of 'gold and bedolach and shoham stone,' that is, along the fertile valley of

Susiana, were those primitive people, preceding the Elamites of history, who are said to have spoken an agglutinate language,[1] then we have at least one stage of this migration. A second line leads west to the eastern coast of the Mediterranean, to Egypt and to North Africa. A third passes south-westward through Southern Arabia and across the Red Sea into interior Africa. To the sons of Japhet are ascribed two lines of migration, one through Asia Minor and the northern coasts of the Mediterranean ; another north-west, around the Black Sea. The Semites would seem to have been a less wandering people at the first, but subsequently to have encroached on and mingled with the Hamites, and especially on that western line of migration leading to the Mediterranean. All this can be gathered from undisputed national names in the several lines of migration above sketched, without touching on the more obscure and doubtful names or referring to tribes which remained near the original centre. We must, however, inquire a little more particularly into the movements bearing on Palestine and Egypt.

[1] Sayce (*Hibbert Lectures*) and Bagster's *Records oj the Past.* Inscriptions of Cyrus published in the last volume of the latter appear to set at rest the vexed questions relating to early Elam. It would seem that in the earliest times Cushites and Semitic Elamites contended for the fertile plains and the mountains east of the Tigris, and were finally subjugated by Japhetic Medes and Persians. Thus this region first formed a part of the Cushite Nimrodic empire (Genesis ii. 11, x. 8) ; it then became the seat of a conquering Elamite power (Genesis xiv. 1 to 4) ; and was finally a central part of the Medo-Persian empire. All this agrees with the Bible and the inscriptions, as well as in the main with Herodotus.

So far as the writer in Genesis is informed, he does not seem to be aware of any sons of Japhet having colonised Palestine or Egypt. It was only in the later reflux of population that the sons of Javan gained a foothold in these regions. They were both colonised primarily by Hamites and subsequently intruded on by Semites.

Here a little prehistoric interlude noted by the writer, or by an author whom he quotes, gives a valuable clue not often attended to. The oldest son of Ham, Cush, begat Nimrod, the mighty hunter and prehistoric conqueror, who organised the first empire in that Euphratean plain which subsequently became the nucleus of the Babylonian and Assyrian power. The site of his kingdom cannot be doubted, for cities well known in historic times, Babel, Erech, Accad, and Calneh, were included in it, as well as probably Nineveh. The first point which I wish to make in this connection is that we cannot suppose this to have been a Semitic empire. Its nucleus must have been composed of Nimrod's tribal connections, who were Hamites and presumably Cushites. He is, indeed, said to have gone into or invaded the land of Ashur, and if by this is meant the Semitic Ashur, he must have been hostile to these people, as indeed the Chaldeans were in later times. The next point to be noted is that the Nimrodic empire must have originated at a time when the Cushites were still strong on the Lower Euphrates, and before that great movement of these people

which carried them across Arabia to the Upper Nile, and ultimately caused the name Cush or Kesh to be almost exclusively applied to the Ethiopians of Africa. Now is this history, or mere legend?

The answer of archæology is not doubtful. We have in the earliest monuments of Chaldea evidence



HEAD ILLUSTRATING THE MOST ANCIENT TYPE OF CUSHITE TURANIAN, FROM TEL-LOH (after de Sarzec). The cap is perhaps an imitation of the antediluvian shell-caps, like that of the 'man of Mentorie.'

that there was a pre-Semitic population, to whom, indeed, it is believed that the Semites who invaded the country owed much of their civilisation. A recent writer has said that 'outside of the Bible we know nothing of Nimrod,' but others see a trace of him in the legendary hero of Chaldean tradition, Gisdubar or Gingamos, while others think that, as Na-marod,

he may be the original of Merodach, the tutelary god of Babylon. Independently of this, there was certainly an early Chaldean and 'Turanian' empire, which must have had some founder, whatever his name, and which was not Semitic or Aryan, and therefore what an early writer would call Hamitic. Further, our author traces from this region the great Cushite line of migration, which includes such well-known names as Seba, Sabta, Sheba and Dedan, into Arabia on the way to Africa. Here the Egyptian monuments take up the tale, and inform us of a South Arabian and East African people, the people of Pun or Punt, represented as like to themselves and to the Kesh or Ethiopians, and who thus correspond to the Arabian Cushites of Genesis. In accordance with this the Abyssinian of to-day is scarcely distinguishable from the old Punites as represented on the Egyptian monuments.[1]

Thus the primitive Cushite kingdom and one of the great lines of Cushite migration are established by ancient monuments. Let it be further observed that, as represented in Egypt, these primitive Ethiopians were not black, but of a reddish or brownish colour, like the Egyptians themselves, and that their migration explains the resemblance of the customs and religion of early Egypt to those of Babylonia, and the ascription by the Egyptians of the origin of their gods to the land of Pun.

[1] The recent discoveries of Glaser with reference to the early civilisation of Southern Arabia also bear on this point.

The remaining sons of Ham, Mizraim, Put and Canaan, are not mentioned in connection with the old Nimrodic kingdom, and seem to have moved westward at a very early period. They were already 'in the land,' and apparently constituted a considerable citizen population before the migration of Abraham.

Mizraim represents the twin populations of the delta and Lower Egypt, and the Tel-el-Amarna tablets inform us that long before the time of Moses Mitzor was the ordinary name of Egypt, while we know that its early population was closely allied in features and language to the Cushites.

Canaan[1] heads a central line of migration, and Sidon and Cheth are said to have been his leading sons. The first represents the Phœnician maritime power of Northern Syria, the second that great nation known to the Egyptians as Kheta and to the Assyrians as Khatti, whose territory extended from Carchemish on the Euphrates through the plain of Coele-Syria to Hebron in Southern Palestine, and not improbably into the delta. They were a people whose language was allied to that of Cushite Chaldea,[2] whose features were of a coarser type than those of their more southern *confrères*, and who, according to the Egyptian annals, were closely allied with the

[1] Canaan with our old historian is the name of a man, but it came to designate first the 'low country' or coast region of Western Palestine, and then the whole of Palestine.

[2] Conder and others call it Turanian.

this kind (Horites, Avvites, &c.)[1] were known, whose affinities had been lost; and it is not necessary to suppose that these were remnants of antediluvians, since what we know in modern times of the wanderers on the outskirts of great migrations sufficiently accounts for their existence.

This is, I think, a fair summary of the testimony of the writer of Genesis x., as compared with the general evidence of history and archæology. But we have something further to learn from what may be called the fossil remains of prehistoric peoples as embodied in the Egyptian monuments, which are conversant with all the nations around the eastern end of the Mediterranean.

The Egyptians divided the nations known to them into four groups, of which they have given us several representations in tombs and public buildings. One of these consisted of their own race. The other three were as follows: (1) Southern peoples mostly of dark complexions, ranging from light brown to black. These included the Cushites, Punites, and negroes. (2) Western peoples mostly of fair complexions inhabiting the islands and northern coasts of the Mediterranean, the 'Hanebu' or chiefs of the north or of the isles, with some populations of North Africa, the so-called white Lybians and Maxyans. (3) Northern or north-eastern peoples, or those of Syria and the neighbouring parts of Western Asia, Amorites, Hittites, Edomites, Arabs, &c., usually represented as of yellowish complexion.

[1] Deuteronomy ii.

The first of these divisions evidently corresponds with the line of Cushite migration of Genesis, extending from Shinar through Southern Arabia, Nubia, and Ethiopia, and of which the negroes are apparently degraded members pushed in advance of the others, while the populations of Pun and Kesh, the southern Arabians and their relatives in Africa, closely resemble, as figured in the monuments, the Egyptians themselves.

The second group of the Egyptian classification represents those so-called Aryan peoples of Europe and its islands, and parts of Northern Africa, of whom the Greeks are a typical race, and who in Genesis are said to have possessed the 'Isles of the Gentiles'; though in the wave of migration from the east they were in many places preceded by non-Aryan races, Pelasgians, Iberians, &c., possibly wandering Hamitic tribes, while they were also invaded by that scattering abroad of the Phœnician Canaanites referred to in Genesis. They are represented in the monuments as people with European features, fair complexions, and sometimes fair hair and blue eyes.

The third group is the most varied of the whole, because its seat in Syria was a meeting-place of many tribes. Its most ancient members, the Phœnicians and allied nations, were, according to the monuments, men resembling the Egyptian and Cushite type, and these, no doubt, were those pre-Semitic and prehistoric nations of Canaan referred to in the remark-

able notes regarding the Emim, Zuzim, &c., in the second chapter of Deuteronomy, which may be regarded as a foot-note to the Toledoth of Genesis x. These aborigines were invaded by men of different types. First, we find in the monuments that the Amorites of the Palestine hills were a fair people with somewhat European features, like some of the present populations of the Lebanon. When returning over the Lebanon in 1884 we met a large company of men with camels and donkeys carrying merchandise. They were fair-complexioned and with brown hair, and from their features I might have supposed they were Scottish Highlanders. I was told they were Druses, and they were evidently much like, as are indeed many of the modern fellaheen of the Palestine hills, the Amar as they are pictured in Egypt. These white peoples, though reckoned in the Bible as Hamites, may have had a mixture of Aryan blood. It is to be noted here that the Amorite chiefs, Aner, Eshcol, and Mamre, named as confederate with Abraham, have non-Semitic names.

A later inroad was that of the Hittites, evidently a people having affinity with the Philistines and Egyptians, but whose chiefs and nobles seem to have been of Tartar blood, like the modern Turks. The names of their kings seem also to have been non-Semitic. Later, the great westward migration of Semitic peoples, to which that of Abraham himself belongs, not only introduced the Israelites but many

nations of Semitic or mixed blood, the Moabites, Ammonites, Edomites, Ishmaelites, &c., whom we find figuring in the Egyptian monuments as yellow or brownish people with a Jewish style of features, and all of whom, as mentioned above, would be known to the Egyptians and Canaanites as 'Hebrews.'[1]

Thus the monuments confirm the Jewish record, and the confusion which some ethnologists have introduced into the matter arises from their applying in an arbitrary manner the special tests of physical and philological characteristics, and neglecting to distinguish the primary migrations of men from subsequent intrusions.

Another singular point of agreement is that, just as in Egypt we find men civilised from the first, so we find elsewhere. In Egypt writing and literature date from before the time of Abraham. In like manner we have no monumental evidence of any time when the Accadian people of Babylonia were destitute of writing and science, and we now find that there were learned scribes in all the cities of Canaan, and that the Phœnicians and Southern Arabians knew their alphabet ages before Moses, while even the Greeks seem to have known alphabetic writing long before the Mosaic age.[2] These men, in short, were descendants of the survivors of

[1] This is independent of the question whether we regard the name Eber as that of an ancestor, or merely of men from beyond the Euphrates.

[2] Petrie, *Illahun, Kahun and Garob*, 1891.

the Noachian Deluge, and therefore civilised from the first; and though we have no certain evidence of letters before the Flood, except the statement of the author of the Babylonian deluge tablets, that Noah hid written archives at Sippara before going into the ark, yet it is quite certain that men who could build Noah's ship are not unworthy ancestors of the Phœnician seamen, who probably launched their barks on the Mediterranean before the death of Noah himself. Thus, whatever value we may attach to the record in Genesis, we cannot refuse to admit that it is thoroughly consistent with itself and with the testimony of the oldest monuments of Asia and Africa, as it is also with the evidence of the geological changes of the pleistocene and early modern epoch.

In like manner the Egyptian inscriptions of the conquests of Thothmes III. give us a pre-Mosaic record of Palestinian geography corresponding with that of the Hebrew conquest, and the pictures of sieges coincide with the excavations of Petrie at Lachish in restoring those Canaanite towns, 'walled up to heaven,' which excited the fear of the Israelites. Neither can we scoff at the illiteracy of men who were carrying on diplomatic correspondence in written despatches before Genesis itself was compiled. Nor can we doubt the military prowess of these people, their chariot forces, their sculptured idols and images, their wealth of gold and silver, their agricultural and artistic skill. All these are amply

proved by the monuments of the Egyptians and the Hittites.[1]

Palestine thus presents a prehistoric past parallel with the earlier years of Egypt. It has, however, a still earlier period, for in Palestine, as stated in a previous chapter, we have evidence of the existence of man long before the dispersion of the sons of Noah. To appreciate this evidence, we must go back, as in the case of Egypt, to the pre-human period. All along the coast of Palestine, from Jaffa to the northern limit of old Phœnicia, the geological traveller sees evidence of a recent submergence, in the occurrence of sandstone, gravel, and limestone with shells and other marine remains of species still living in the Mediterranean. These are the relics of that pleistocene submergence already referred to, in which the Nile valley was an arm of the sea and Africa was an island. No evidence has been found of the residence of man in Palestine in this period, when, as the sea washed the very bases of the hills, and the plains were under water, it was certainly not very well suited to his abode. The climate was also probably more severe than at present, and the glaciers of Lebanon must have extended nearly to the sea.

[1] Bliss, in the Quarterly Statement of the Palestine Exploration Fund for April 1892, figures many interesting objects, found in the lower or Amorite stratum of the mound of Tell-el-Hesy (Lachish). We have here a bronze battle-axe and heads of javelins that may have been used against the soldiers of Joshua, and axes and pottery of equally early date, along with multitudes of flint flakes, arrow-heads, &c., used at this early time. It is to be hoped that the further exploration of this site may yield yet more interesting results.

This was the time of the so-called glacial period in Western Europe.

This, however, was succeeded by that post-glacial period in which, as already explained, the area of the Mediterranean was much smaller than at present, and the land encroached far upon the bed of the sea. This, the second continental period, is that in which man makes his first undoubted appearance in Europe, and we have evidence of the same kind in Syria, to which I have already directed attention in the description of the caverns of the Lebanon, in Chapter IV.

That the occupancy of these caves is very ancient is proved by the fact that the old Egyptian conquerors, who cut a road for themselves over these precipices before the Exodus, seem to have found them in the same state as at present, while farther south ancient Syrian tombs are excavated in similar bone breccias. But there is better evidence than this. The bones and teeth in these caves belong not to the animals which have inhabited the Lebanon in historic times, but to creatures like the hairy rhinoceros and the bison, now extinct, which could not have lived in this region since the comparatively modern period in which the Mediterranean resumed its dominion over that great plain between Phœnicia and Cyprus. This we know had been submerged long before the first migrations of the Hamites into Phœnicia, even before the entrance of those comparatively rude tribes which seem to have inhabited the country before the Phœni-

cian colonisation.[1] Unfortunately no burials of these early men have yet been found, and perhaps the Lebanon caves were only their summer sojourns on hunting expeditions. They were, however, probably of the same stock with the races (the Cro-magnon and Canstadt) of the so-called mammoth age in Western Europe, who have left similar remains. Thus we can carry man in the Lebanon back to that absolutely prehistoric age which preceded the Noachian Deluge and the dispersion of the Noachidæ.[2]

If in imagination we suppose ourselves to visit the caves of the Nahr-el-Kelb pass, when they were inhabited by these early men, we should find them to be tall muscular people, clothed in skins, armed with flint-tipped javelins and flint hatchets, and cooking the animals caught in the chase in the mouths of their caves. They were probably examples of the ruder and less civilised members of that powerful and energetic antediluvian population which had apparently perfected so many arts, and the remains of whose more advanced communities are now buried in the silt of the sea bottom. If we looked out westward on what is now the Mediterranean, we should see a wide wooded or grassy plain as far as eye could reach, and perhaps might discern vast herds of elephant, rhinoceros, and bison wandering

[1] Some of these tribes also lived in caves, as that of Ant Elias, but the animals they consumed are those now living in the Lebanon.

[2] Dawson, *Trans. Vict. Institute*, May 1884; also *Modern Science in Bible Lands.*

over these plains in their annual migrations. Possibly on the far margin of the land we might see the smoke of antediluvian towns long ago deeply submerged in the sea.

The great diluvial catastrophe which closed this period, and finally introduced the present geographical conditions, we have seen good reason to identify with the historical Deluge, and the old peoples of the age of the mammoth and rhinoceros were antediluvians, and must have perished from the earth before the earliest migration of the Beni Noah.

Putting together the results referred to in the preceding pages, we may restore the prehistoric ages of the Eastern Mediterranean under the following statements:

1. In the period immediately preceding human occupancy, the land of Palestine, Egypt, and Arabia participated in the great pleistocene depression, accompanied by a rigorous climate.

2. The next stage was one of continental elevation, in which the borders of the Mediterranean were dry land, and vast plains in this basin, and even in the Western Atlantic, were open to human migration. In this age palæocosmic men took up their abode all over Western Asia, Europe, and Northern Africa, and probably occupied broad lands since submerged. At this period the region was inhabited by the mammoth, rhinoceros, bison, and other large animals now altogether or locally extinct.

3. The earlier part of this post-glacial or antedi-

luvian period was one of mild climatal conditions, followed by a slight return of the conditions of the previous glacial age.

4. The period was terminated by a great submergence, accompanied with vast destruction of animal and human life; and of comparatively short duration, corresponding to the historical Deluge.

5. From this depression the more limited continents of the modern period were elevated, and man again overspread them from his primitive seats in the Euphratean region, as recorded in the tenth chapter of Genesis.

6. In this early migration the Biblical Hamites, forming one of the groups of men vaguely known as Turanian, first spread themselves over Palestine and Egypt, and founded the early Phœnician, Canaanite, Mizraimite, and Cushite tribes and nations.

7. In early historic times Semitic peoples, Hebrews and others from the east, and Mongoloid peoples from the north, migrated into Palestine and dominated and mixed with the primitive tribes, finally penetrating into Egypt and establishing there the dominion known as that of the Hyksos. The historical Moabites, Ammonites, Ishmaelites, and Hittites were peoples of this character, having a substratum of Hamite blood with aristocracies of Semitic or Tartar origin.

It will be observed that while archæological evidence tends to illustrate and corroborate that wonderful collection of early historical documents

contained in the Book of Genesis, and to prove their great antiquity, on the other hand these documents prove to be the most precious sources of information as to the antediluvian age, the great Flood, the earliest dispersion of men, the old Nimrodic empire, the connections of Asiatic and African civilisation, and other matters connected with the origins of the oldest nations, respecting which we have little other written history.

We thus learn that, relatively to Bible history, there is no prehistoric age, since it carries us back beyond the Deluge to the origin of man, so that we might properly restrict this term in its narrower signification to those parts of the world not covered by this primitive history. It is true that a tide of criticism hostile to the integrity of Genesis has been rising for some years; but it seems to beat vainly against a solid rock, and the ebb has now evidently set in. The battle of historical and linguistic criticism may indeed rage for a time over the history and date of the Mosaic law, but in so far as Genesis is concerned it has been practically decided by scientific exploration.

Since writing the preceding pages I have met with a remarkable paper by Mr. Horatio Hale in the *Transactions of the Royal Society of Canada*.[1] It is one which should commend itself to the study of every Biblical scholar and archæologist; but is contained in a periodical which perhaps meets the

[1] Vol. IX. Sec. II. 1891.

eyes of few of them. In this paper he maintains the importance of language as a ground of anthropological classification, and then uses his wide knowledge of the languages of American aborigines, and other rude races, to show that the grammatical complexity and logical perfection of these languages implies a high intellectual capacity in their original framers, and that where such complex and perfect languages are spoken by very rude tribes like the Australian aborigines, they originated with cultivated and intellectual peoples—in the case of the Australian, with the civilised primitive Dravidians of India. He thus shows that languages, like alphabets, have undergone a process of degradation, so that those of modern times are less perfect exponents of thought than those which preceded them, and that primitive man in his earliest state must have been endowed with as high intellectual powers as any of his descendants.

On similar grounds he shows that it is not in the outlying barbarous races that we are to look for truly primitive man, since here we have merely degraded types, and that the primitive centres of man and language must have been in the old historic lands of Western Asia and Northern Africa. On this view the time necessary for the development of the arts of civilisation and of extensive colonisation would not be great. 'In five centuries a single human pair planted in a fertile oasis might have given origin to a people of five hundred thousand souls, numerous

enough to have sent out emigrations to the nearest inviting lands.' The same lapse of time would have sufficed to develop agriculture, to domesticate animals, and to make some progress in architectural and other arts of life. He quotes the remarkable passage of Reclus[1] as to the agency of woman in the inventions of early art, and shows that this accords with more modern experience among the less civilised nations. It is obvious that all this tends to bring scientific anthropology into the closest relation with the old Biblical history, though Hale, in deference, perhaps, to modern prejudices, does not refer to this.

In the passage quoted by Hale, Reclus says: 'It is to woman that mankind owes all that has made us men.' Following this hint of the ingenious French writer, we may imagine the first man and woman inhabiting some fertile region, rich in fruits and other natural products, and subsisting at first on the uncultivated bounty of nature. With the birth of their first child, perhaps before, would come the need of shelter either in some dry cavern or booth of poles and leaves or bark, carpeted perhaps with moss or boughs of pine. This would be the first 'home,' with the woman for its housekeeper. We may imagine the man bringing to it the lamb or kid whose dam he had killed, and the woman, with motherly instinct, pitying the little orphan and training it to be a domestic pet, the first of tamed animals. She, too, would store grain, seeds and berries for domestic use,

[1] *Primitive Folk* (Contemporary Science Series), p. 58.

and some of these germinating would produce patches of grain, or shrubs, or fruit trees around the hut. Noticing these and protecting them, she would be the first gardener and orchardist. The woman and her children might add to the cultivated plants or domesticated quadrupeds and birds; and the man would be induced, in the intervals of hunting and fishing, to guard, protect, and fence them.

When the boys grew up, to one of them might be assigned the care of the sheep and goats, to the other the culture of the little farm, while they might aid their father in erecting a better and more artistic habitation, the first attempt at architecture, and in introducing artificial irrigation to render their field more fertile. Is not this little romance of M. Elie Reclus perfectly in harmony with the old familiar story in Genesis, and also with the most recent results of modern science?

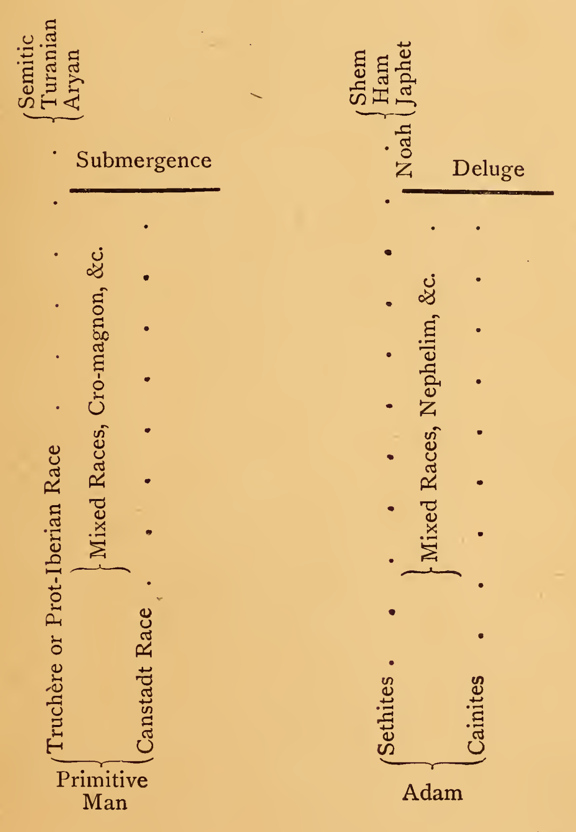
CHAPTER XIII

SUMMARY OF RESULTS

It may be well, in conclusion, to sum up the general truths we have arrived at in relation to the place of man in the great and long-continued drama of the earth's geological history.

1. We have found no link of derivation connecting man with the lower animals which preceded him. He appears before us as a new departure in creation, without any direct relation to the instinctive life of the lower animals. The earliest men are no less men than their descendants, and up to the extent of their means, inventors, innovators, and introducers of new modes of life, just as much as they. We have not even been able as yet to trace man back to the harmless golden age. As we find him in the caves and gravels he is already a fallen man, out of harmony with his environment and the foe of his fellow creatures, contriving against them instruments of destruction more fatal than those furnished by nature to the carnivorous wild beasts. Yet we would fain believe in an Edenic age of innocence; and physiological probability, as well as the old story in Genesis,

Scheme of possible Correlation of the Geological and Historical Records as to Early Man, as the Facts appear in the present Stage of Investigation, May 1894.



demands that we should suppose a primitive condition in which man, careless and happy, should subsist on the spontaneous bounty of nature in some favoured 'garden of the Lord.'

2. If we inquire as to the nature of the interval which separates man from the lower animals, we find that it exists with reference both to his rational and physical nature. With respect to the first we may affirm in man the existence of a lower (psychical) intelligence, similar to that of the inferior animals, and of a spiritual nature allying him with higher intelligences, and with God Himself. Rightly considered, this places the doctrine of creation in a very firm position. Those who deny it must adopt one of two alternatives. Either they must refuse to admit the evidence in man of any nature higher than that of brutes—a conclusion which common sense, as well as mental science, must always refuse to admit—or they must attempt to bridge over the 'chasm,' as it has been called, which separates the instinctive nature of the animal from the rational and moral nature of man—an effort confessedly futile.

3. As to the body of man, the case is different, but still perfectly in harmony with the idea of his higher nature. Man, as to his body, is confessedly an animal, of the earth earthy. He is also a member of the province *vertebrata*, and the class *mammalia*; but in that class he constitutes not only a distinct species and genus, but even a distinct family, or order. In other words, he is the sole species of his

genus, and of his family, or order. He is thus separated, by a great gap, from all the animals nearest to him ; and even if we admit the doctrine, as yet unproved, of the derivation of one species from another in the case of the lower animals, we are unable to supply the 'missing links' which would be required to connect man with any group of inferior animals. This physical distinctness has also a special significance, inasmuch as it depends on certain negative peculiarities such as the absence of clothing, of natural weapons of attack and defence, as well as on the positive properties of the erect posture, the hands adapted to various kinds of manipulation, and the special sensory gifts. Thus viewed in relation to his environment, his wants as well as his possessions in regard to structures and powers, would be fatal to any creature not possessed of his intelligence, and we cannot conceive how such privations or such gifts could spontaneously arise in nature.

4. No fact of science is more certainly established than the recency of man in geological time. Not only do we find no trace of his remains in the older geological formations, but we find no remains even of the animals nearest to him ; and the conditions of the world in those periods seem to unfit it for the residence of man. If, following the usual geological system, we divide the whole history of the earth into four great periods, extending from the oldest rocks known to us, the eozoic, or archæan, up to the

modern, we find remains of man, or his works, only in the latest of the four, and in the later part of this. In point of fact, there is no indisputable proof of the presence of man until we reach the early modern period. This is, no doubt, what was to have been expected on the supposition of the orderly development of the chain of animal life in the long geologic eons ; but it is not by any means the only hypothesis that was possible when, for example, the Book of Genesis was written. A more fanciful cosmologist might at that time have given precedence to man, and might have supposed that the other animals were produced later, and for his benefit, or his injury. This is the view of the sacred writer himself with respect to the local group of animals intended to be in immediate association with the first man. Restricted in this way, the statement of a group of animals created with man in his earliest abode is not contradictory to the order in Genesis first, nor scientifically improbable. We have seen that in any case the deductions from geology are in harmony with the earliest revelations made to the human mind on the subject, and in accordance with all the later facts of actual history.

5. The absolute date of the first appearance of man cannot perhaps be fixed within a few years or centuries, either by human chronology or by the science of the earth. It would seem, however, that the Bible history, as well as such hints as we can gather from the history of other nations, limits us to

two or three thousand years before the Deluge of Noah, while some estimates of the antiquity of man, based on physical changes or ancient history, or on philology, greatly exceed this limit. If the earliest men were those of the river gravels and caves, men of the 'mammoth age,' or of the 'palæolithic' or palæocosmic period, we can form some definite ideas as to their possible antiquity. They colonised the continents immediately after the elevation of the land from the great subsidence which closed the pleistocene or glacial period, in what has been called the 'continental' period of the post-glacial age, because the new lands then raised out of the sea exceeded in extent those which we have now. We have, as stated in a previous chapter, some measures of the date of this great continental elevation, and know that its distance from our time must fall within about eight thousand years. Many indications, both in Europe and America, lead to the belief that it is physically impossible that man could have colonised the northern hemisphere at an earlier date than this geologically recent continental period.

6. There is but one species of man, though many races and varieties; and these races or varieties seem to have developed themselves at a very early time and have shown a remarkable fixity in their later history. There is reason to believe, however, from various physiological facts, that this is a very general law of varietal forms, which are observed to appear rapidly or suddenly, and then in favourable circum-

stances to be propagated continuously. It would seem also to apply to the introduction of forms regarded as species, since it is not unusual to find a genus at or near its origin represented by its maximum number of specific forms.

7. The precise locality of the origin of man can be defined on probable grounds as in a temperate region, supplied with the vegetable productions most useful to him in a natural state, and free from destructive animal rivals. We can scarcely suppose that this locality can have been in any of those parts of the world in which man finds the greatest difficulty in subsisting, or becomes most degraded, though this paradoxical view has been held by some archæologists. It must rather have been in some fertile and salubrious region of the northern hemisphere; and probability as well as tradition points to those regions in South-Western Asia which have not only been the earliest historical abodes of man, but are also the centres of the animals and plants most useful to him. It is interesting to note here that Hæckel, on purely physical grounds, decides against Europe, Africa, Australia, and America, and concludes that 'most circumstances indicate Southern Asia.'

8. It is to be observed, however, that the diluvial interlude gives a double origin of man; but the historical accounts of the neocosmic dispersion, as we have already seen, refer us in this case also to the same regions of South-Western Asia. The traditions which ascribe human origin to a 'Mountain of the

North' refer to the second dispersion, and coincide with the Ararat of Genesis and the 'Mountain of the North' on which the ship of Hasisadra was supposed by the Chaldeans to have grounded.

9. We are now in a position to correlate the historical Deluge with the great geographical changes which closed the palanthropic age. This, when regarded as an established fact, furnishes the solution of many of the most disputed questions of anthropology. The misuse of the Deluge in the early history of geology, in employing it to account for changes that took place long before the advent of man, certainly should not cause us to neglect its legitimate uses, when these arise in the progress of investigation. It is evident that if this correlation be accepted as probable, it must modify many views now held as to the antiquity of man. In that case, the modern rubble spread over plateaus and in river valleys, far above the reach of the present floods, may be accounted for, not by the ordinary action of the existing streams, but by the abnormal action of currents of water diluvial in their character. Further, since the historical Deluge cannot have been of very long duration, the physical changes separating the deposits containing the remains of palæocosmic men from those of later date would, in like manner, be accounted for, not by slow processes of subsidence, elevation, and erosion, but by causes of a more abrupt and cataclysmic character.

Finally, it has been the tendency of modern geo-

logical and archæological discovery to attach more and more value and importance to the ancient records of the human race, and especially to those precious documents which have been preserved to our time in the Book of Genesis.

We have merely glanced cursorily at a few of the salient points of the relation of the primitive history of man in Genesis to modern scientific discovery. Many other details might have been adduced as tending to show similar coincidences of these two distinct lines of evidence. Enough has, however, been said to indicate the remarkable manner in which the history in Genesis has anticipated modern discovery, and to show that this ancient book is in every way trustworthy, and as remote as possible from the myths and legends of ancient heathenism, while it shows the historical origin of beliefs which in more or less corrupted forms lie at the foundations of the oldest religions of the Gentiles, and find their true significance in that of the Hebrews. To the Christian the record in Genesis has a still higher value, as constituting those historical groundworks of the plan of salvation to which our Lord Himself so often referred, and on which He founded so much of His teaching.

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